

1. As nations and space agencies have sent spacecraft and satellites into space, human-created debris—or “space junk”—has accumulated in orbit around Earth. Space debris may range in size from small parts and flecks of paint to whole defunct satellites, but all of it poses a potential risk if it collides with a spacecraft. Many countries have agreed that the management of space debris is a priority because it poses a threat to space exploration and satellites. However, removing it is difficult and costly.

Carefully read the following six sources, including the introductory information for each source. Write an essay that synthesizes material from at least three of the sources and develops your position on the most important factors that space agencies and nations should consider when dealing with the problem of space debris.

Source A (O’Callaghan article)

Source B (graph from ESA)

Source C (Quell article)

Source D (Rossettini opinion article)

Source E (NOAA article)

Source F (chart from Mosher and Kiersz)

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Select and use evidence from at least three of the provided sources to support your line of reasoning. Indicate clearly the sources used through direct quotation, paraphrase, or summary. Sources may be cited as Source A, Source B, etc., or by using the description in parentheses.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Source A

O’Callaghan, Jonathan. “What Is Space Junk and Why Is It a Problem?” *Natural History Museum*, nhm.ac.uk/discover/what-is-space-junk-and-why-is-it-a-problem.html.

The following is an excerpt from an article on the website of the Natural History Museum, London, which conducts scientific research and displays scientific findings and collections to the public.

What is space junk?

Space junk, or space debris, is any piece of machinery or debris left by humans in space.

It can refer to big objects such as dead satellites that have failed or been left in orbit at the end of their mission. It can also refer to smaller things, like bits of debris or paint flecks that have fallen off a rocket.

Some human-made junk has been left on the Moon, too.

How much space junk is there?

While there are about 2,000 active satellites orbiting Earth at the moment, there are also 3,000 dead ones littering space. What’s more, there are around 34,000 pieces of space junk bigger than 10 centimetres in size and millions of smaller pieces that could nonetheless prove disastrous if they hit something else.

How does space junk get into space?

All space junk is the result of us launching objects from Earth, and it remains in orbit until it re-enters the atmosphere.

Some objects in lower orbits of a few hundred kilometres can return quickly. They often re-enter the atmosphere after a few years and, for the most part, they’ll burn up—so they don’t reach the ground. But debris or satellites left at higher altitudes of 36,000 kilometres—where communications and weather satellites are often placed in geostationary orbits¹—can continue to circle Earth for hundreds or even thousands of years.

Some space junk results from collisions or anti-satellite tests in orbit. When two satellites collide, they can smash apart into thousands of new pieces, creating lots of new debris. This is rare, but several countries including the USA, China and India have used missiles to practice blowing up their own satellites. This creates thousands of new pieces of dangerous debris.

What risks does space junk pose to space exploration?

Fortunately, at the moment, space junk doesn’t pose a huge risk to our exploration efforts. The biggest danger it poses is to other satellites in orbit.

These satellites have to move out of the way of all this incoming space junk to make sure they don’t get hit and potentially damaged or destroyed.

In total, across all satellites, hundreds of collision avoidance maneuvers are performed every year, including by the International Space Station (ISS), where astronauts live.

Fortunately, collisions are rare: a Chinese satellite broke up in March 2021 after a collision. Before that, the last satellite to collide and be destroyed by space junk was in 2009. And when it comes to exploring beyond Earth’s orbit, none of the limited amount of space junk out there poses a problem.

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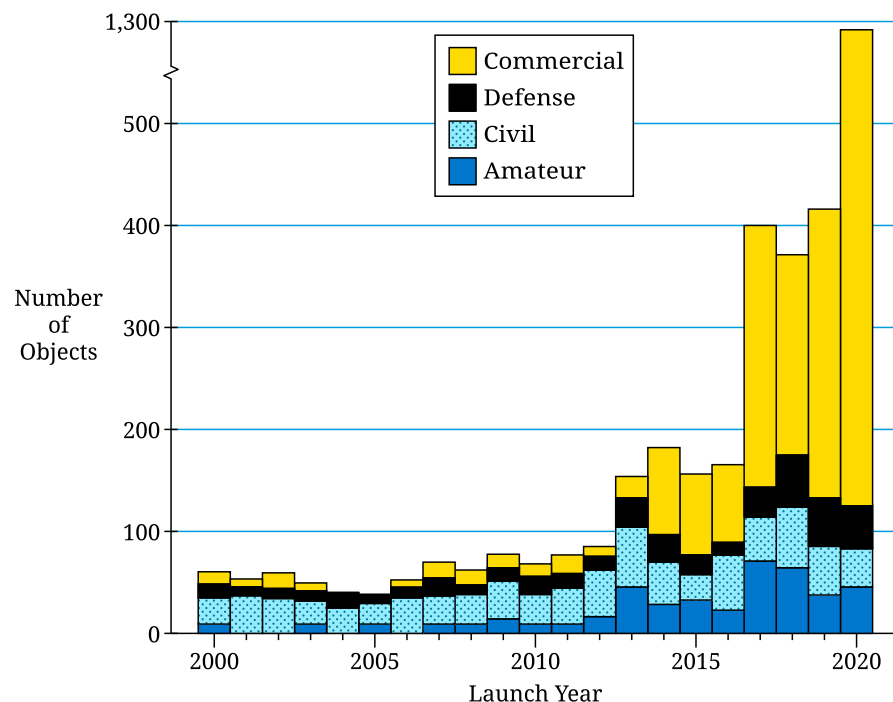
1: Satellites in geostationary orbit circle Earth above the equator following Earth’s rotation.

Source B

“ESA’s Space Environment Report 2021.” ESA, The European Space Agency, esa.int/Space_Safety/Space_Debris/ESA_s_Space_Environment_Report_2021.

The following is adapted from a graph published on the website of the European Space Agency, an international organization with 22 member states.

Satellites Launched into Low-Earth Orbit



Note: Satellites are classified here according to their main source of funding.

“Commercial” indicates funding from a private business.

“Defense” indicates funding from a military source.

“Civil” indicates funding from a nonmilitary governmental source.

“Amateur” indicates funding from other sources, including private individuals and academic institutions.

Source C

Quell, Molly. “Lack of Space Law Complicates Growing Debris Problem.” *Courthouse News Service*, 28 Aug. 2020, courthousenews.com/lack-of-space-law-complicates-growing-debris-problem/.

The following is excerpted from an article published by an American news service specializing in legal issues.

In total, there are five United Nations treaties that cover various aspects of space. The earliest, the Outer Space Treaty, which was ratified in 1967, has 104 signatories. It declared space free for all nations to explore and banned the use of nuclear weapons in space, a major security concern during the Cold War.

Prior to the signing of the Outer Space Treaty, each nation was considered to have sovereignty over the air above its borders. This concept was laid down in the Paris Convention of 1919, which aimed to regulate aerial travel, a new and rapidly developing industry.

Subsequent treaties—such as a 1968 agreement on the rescue of astronauts and the 1975 Registration Convention, which requires that objects launched into space be registered with a U.N. body—cover narrow aspects of space travel and have been signed by fewer than half of the world’s countries.

Collisions have occurred in space. Most of them are between defunct satellites, but one 1977 crash scattered radioactive debris across Canada. A malfunction onboard the nuclear-powered Soviet spy satellite Kosmos 954 pushed it back into the Earth’s atmosphere and Canada billed the Soviet Union more than 6 million Canadian dollars (\$18 million today) for the damage. The two countries ultimately agreed on 3 million Canadian dollars (\$9 million today).

The problem is only getting worse, said Oliver Tian, a researcher in the legal framework of space debris at the University of Leiden in The Netherlands. Nearly 9,000 satellites have been launched since the Soviet Union first sent Sputnik 1 to the Earth’s orbit in 1957. SpaceX alone has launched 60 satellites this year.

Most of what goes into space doesn’t come back. Nations aren’t required to remove their garbage from space and to do so voluntarily would cost a tremendous amount of money. So more than half of those 9,000 satellites remain, some as operational but more as decommissioned junk. As they crash into each other, they create more tiny bits of debris whizzing around the Earth.

“Space could be inaccessible to humans,” said Tian.

This worst-case scenario is known as the Kessler Effect, when the quantity of space debris created from objects crashing into one another increases until it’s no longer possible to travel through it.

The European Space Agency launched its Clean Space Initiative in 2013 and has commissioned the first debris removal mission, scheduled for 2025. Together with the Swiss tech startup Clear Space, the ESA plans to use robotic arms to capture part of a rocket and deorbit it to the Earth’s atmosphere, where it will burn up on reentry.

“This is an environmental problem,” said Schrogl. “What is happening on Earth is happening in space.”

Despite the growing problem, the ESA's chief strategy officer is optimistic. Unlike other issues facing humanity—climate change, poverty, war—the ones surrounding space debris have clear and straightforward solutions. If, that is, countries are willing to get together and act.

“It is a solvable problem,” Schrogl said.

Courtesy of Courthouse News Service

Source D

Rossetini, Luca. “Space Debris: Prevention, Remediation or Mitigation?” *SpaceNews*, 3 Mar. 2015, spacenews.com/op-ed-space-debris-prevention-remediation-or-mitigation/.

The following is an excerpt from an opinion article published in an online newsletter that focuses on the analysis of factors and trends shaping the global space industry. The author is the chief executive and cofounder of a start-up company dedicated to addressing the space debris problem.

What is the best strategy to stop the increasing concentration of junk around the planet?

Passive and active devices can be installed on satellites to remove them at the end of their missions. Some envision an active debris removal (ADR) mission to go grab a dead satellite and remove it. There are even studies for refurbishing missions, where a robotic space vehicle would grab a satellite nearing its end of life to refuel and service it. Nearly all of these plans are real only on paper.

Effort and money are being spent today on the development of ADR missions, a remediation technique focused on eliminating the garbage that is already in space. These technologies, once developed, will permit spacecraft to grab large or small satellites and remove them from orbit. Unfortunately there are still several criticalities to face. There are political and legal issues related to the ownership of defunct satellites that prevent, for example, a European ADR vehicle from disposing of an Indian satellite without permission. There are also technology development challenges, like the need to capture a noncooperating target. Finally, there is the cost of every single mission that will be paid by taxpayers. Moreover, according to some experts, we need to remove about 10 big satellites per year to significantly reduce the collision risk. With more than 100 satellites launched into space every year, pulling 10 down does not get us closer...

Mitigation is the process of reducing the likelihood that a specific object will cause more debris. It involves passivation¹ of rocket bodies and decommissioned spacecraft—venting pressure vessels and fuel tanks and discharging batteries to prevent explosions in space. These fundamental measures are quite well implemented in all the new satellites launched.

But once more, mitigation measures by themselves don't get us any closer still.

In the end we can't limit ourselves to “reducing,” “remediating” or “mitigating” if what we ultimately want is to operate in a clean space, where operators are not bothered by other threatening man-made objects approaching their assets.

We should first make sure that every new satellite and launch vehicle is properly and effectively removed at the end of life. Then we can start removing the defunct satellites already in space. Finally, we may think about recycling and reusing spent satellites already in space.

Therefore, prevention is the first action to be put in place, while we develop effective and efficient technologies for the ADR missions. Tethers, balloons, solar sails and active decommissioning devices are all examples of systems that can be installed on satellites before launch to increase the chances of being able to dispose of them at the end of life. Whatever is ready and available today is better than doing nothing. No more dead satellites such as DMSP-F13 should be left uncontrolled in orbit, representing a risk to operative satellites due to possible collisions and to the safe access to space of incoming missions.

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¹: in engineering, a process that makes a material less vulnerable to corrosion or other interaction with its environment

Source E

National Environmental Satellite, Data, and Information Service. “Does Space Junk Fall from the Sky?” *National Oceanic and Atmospheric Administration*, 19 Jan. 2018, www.nesdis.noaa.gov/news/does-space-junk-fall-the-sky.

The following is an excerpt from an article published on a National Oceanic and Atmospheric Administration (NOAA) website devoted to providing environmental data gathered from satellites.

Despite their size, even the smallest of objects, some of which cannot be detected by sensors, can be hazardous to unmanned and manned spacecraft. This is because they are orbiting at extremely high velocities. This is faster than a bullet, which means that the debris can easily punch through the protective covering on satellites or spacecraft.

While space debris is rarely a concern for humans on Earth, our satellites in the sky often have to avoid its dangerous path.

NOAA / NASA Suomi NPP Satellite Avoids Head On Collision at 35,000 mph

For example, on an otherwise quiet Sunday in September 2014, the Suomi NPP mission team was monitoring the possible close approach of a debris object (which was determined to be between 4 inches and 3.3 feet in size range). By early evening, the risk was assessed to be high enough to start planning to maneuver the satellite into a safer zone.

The team determined that the small space debris object was traveling at a rate of almost 17,000 mph directly towards Suomi NPP. They calculated that if no action was taken, it was likely to miss the satellite by just 300 feet on Tuesday, September 30. With that knowledge, the decision was made at 1:30 p.m. on Monday, September 29, for NOAA’s Satellite Operations Facility, or NSOF, in Suitland, Maryland, to reposition Suomi NPP.

“Because Suomi NPP moves at a similar speed as the debris object, if there had been an impact, it would have occurred at a combined speed of nearly 35,000 mph. This would have been catastrophic not only to the satellite, but would result in thousands of pieces of new debris,” said Harry Solomon, Mission Manager for NOAA/NASA Suomi NPP.

Since Suomi NPP’s launch in October 2011, it has successfully completed a few Risk Mitigation Maneuvers to avoid space debris!

Where to Safely Crash Space Junk? The Most Remote Place on Earth!

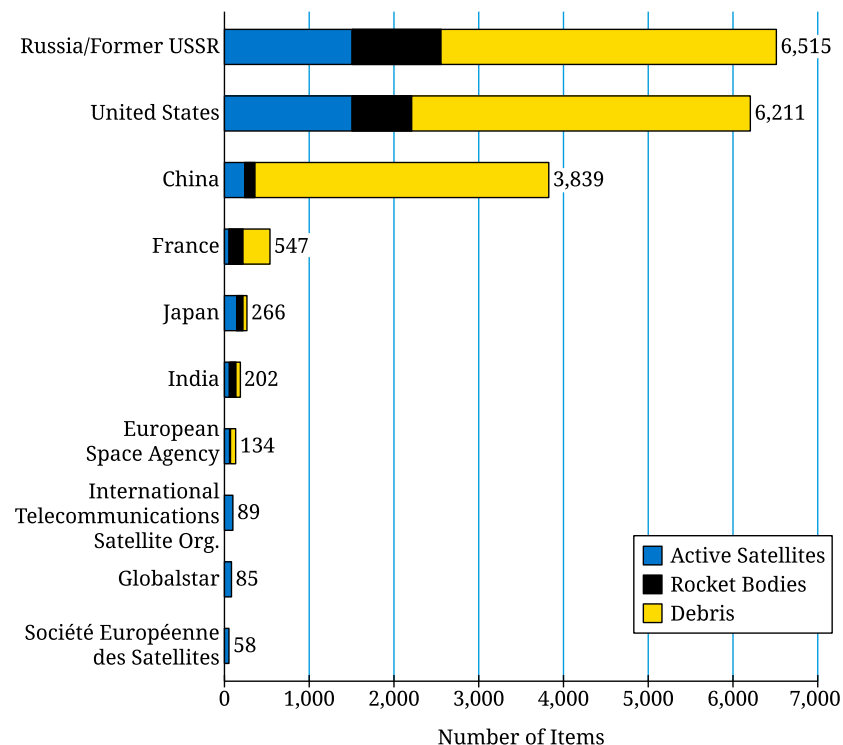
In a global effort to reduce space debris, many satellite mission teams are able to safely maneuver retired satellites back into Earth’s atmosphere so that one of two things occur. For satellites orbiting close to Earth, operators lower the orbit of a decommissioned satellite so that it will naturally re-enter the atmosphere within 25 years (known as the “25-year Rule”). As the satellite begins to fall back toward Earth and loses altitude, the compression and friction in the dense region of the atmosphere closest to the Earth generates a lot of heat which breaks up and burns most of the satellite machinery.

Or, if the satellite has enough fuel, it can fly back through the atmosphere and be crashed into the ocean. This Pacific Ocean location has many names, Point Nemo (which is Latin for ‘no one’) and the Oceanic Pole of Inaccessibility. The nearest land mass is 1,450 nautical miles away.

Source F

Mosher, Dave, and Andy Kiersz. “These Are the Countries on Earth with the Most Junk in Space.” *Business Insider*, 20 Oct. 2017, businessinsider.com/space-debris-garbage-statistics-country-list-2017-10.

The following is a chart based on an image published in an online business magazine.

Countries and Agencies with the Most Stuff in Orbit

Note: The European Space Agency is an intergovernmental organization devoted to space exploration. The International Telecommunications Satellite Organization is an international regulator of satellite services. Globalstar and Société Européenne des Satellites are private telecommunications providers.

2. The following is a passage from the introduction to David Treuer's 2012 nonfiction book *Rez Life: An Indian's Journey Through Reservation Life*. Treuer is a member of the Leech Lake Band of Ojibwe, a tribal nation in Minnesota. In *Rez Life*, Treuer draws on research and personal experience to explore the history of reservations and the issues that affect Native Americans who live on them today. A reservation is an area of land governed by a tribal nation in what is now the United States. Read the passage carefully. Write an essay that analyzes the rhetorical choices Treuer makes to develop his argument about the contributions that Native Americans and their communities have made to the United States.

In your response you should do the following:

- Respond to the prompt with a thesis that analyzes the writer's rhetorical choices.
- Select and use evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Demonstrate an understanding of the rhetorical situation.
- Use appropriate grammar and punctuation in communicating your argument.

Par.

1 [T]he sign reads: WELCOME TO THE LEECH LAKE INDIAN RESERVATION HOME OF THE LEECH LAKE BAND OF OJIBWE PLEASE KEEP OUR ENVIRONMENT CLEAN, PROTECT OUR NATURAL RESOURCES NO SPECIAL LICENCES REQUIRED FOR HUNTING, FISHING, OR TRAPPING.

2 If you're driving—as since this is America is most likely the case—the sign is soon behind you and soon forgotten. However, something is different about life on one side of it and life on the other. It's just hard to say exactly what. The landscape is unchanged. The same pines, and the same swamps, hay fields, and jeweled lakes dropped here and there among the trees, exist on both sides of the sign. The houses don't look all that different, perhaps a little smaller, a little more ramshackle. The children playing by the road do look different, though. Darker. The cars, most of them, seem older. And perhaps something else is different, too.

3 You can see these kinds of signs all over America. There are roughly 310 Indian reservations in the United States, though the Bureau of Indian Affairs (BIA) doesn't have a sure count of how many reservations there are (this might say something about the BIA, or it might say something about the nature of reservations). Not all of the 564 federally recognized tribes in the United States have reservations. Some Indians don't have reservations, but all reservations have Indians, and all reservations have signs. There are tribal areas in Brazil, Afghanistan, and Pakistan, among many other countries. But reservations as we know them are, with the exception of Canada, unique to America. You can see these signs in more than thirty of the states, but most of them are clustered in the last places to be permanently settled by Europeans: the Great Plains, the Southwest, the Northwest, and along the Canadian border stretching from Montana to New York. You can see them in the middle of the desert, among the strewn rocks of the Badlands, in the suburbs of Green Bay, and within the misty spray of Niagara Falls. Some of the reservations that these signs announce are huge. There are twelve reservations in the United States bigger than the state of Rhode Island. Nine reservations are larger than Delaware (named after a tribe that was pushed from the region). Some reservations are so small that the sign itself seems larger than the land it denotes. Most reservations are poor. A few have become wealthy. In 2007 the Seminole bought the Hard Rock Café franchise. The Oneida of Wisconsin

helped renovate Lambeau Field in Green Bay. And whenever Brett Favre¹ (who claims Chickasaw blood) scored a touchdown there as a Packer, a Jet, or a Minnesota Viking, he did it under Oneida lights cheered on by fans sitting on Oneida bleachers, not far from the Oneida Nation itself.

4 Indian reservations, and those of us who live on them, are as American as apple pie, baseball, and muscle cars. Unlike apple pie, however, Indians contributed to the birth of America itself. The Oneida were allies of the Revolutionary Army who fed U.S. troops at Valley Forge and helped defeat the British in New York, and the Iroquois Confederacy served as one of the many models for the American constitution. Marx and Engels² also cribbed from the Iroquois as they developed their theories of communism. Indians have been disproportionately involved in every war America has fought since its first, including one we're fighting now: on July 27, 2007, the last soldiers of Able Company 2nd-136th Combined Arms battalion returned home to Bemidji, Minnesota, after serving twenty-two months of combat duty in Iraq. At the time Able Company was the most deployed company in the history of the Iraq War and was also deployed in Afghanistan and Bosnia. Some of the members of Able Company are Indians from reservations in northern Minnesota.

5 Despite how *involved* in America's business Indians have been, most people will go a lifetime without ever knowing an Indian or spending any time on an Indian reservation. Indian land makes up 2.3 percent of the land in the United States. We number slightly over 2 million (up significantly from not quite 240,000 in 1900). It is pretty easy to avoid us and our reservations. Yet Americans are captivated by Indians. Indians are part of the story that America tells itself, from the first Thanksgiving to the Boston Tea Party up through Crazy Horse, the Battle of the Little Bighorn, and Custer's Last Stand.

1: professional football player who was a quarterback in the National Football League

2: Karl Marx and Friedrich Engels, nineteenth-century German philosophers who cowrote *The Communist Manifesto*

3. In a 2022 interview with *People* magazine promoting her program to empower young girls through sport, professional tennis player and mental health advocate Naomi Osaka said: “For me, the biggest lesson I’ve learned is to try to be present in each moment. It’s easy to lose sight of how far you’ve come, but I’ve been prioritizing trying to live in the moment and enjoy the journey.”

Write an essay that argues your position on the extent to which Osaka’s claim about embracing the present moment is valid.

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Provide evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

STOP
END OF EXAM

1. Mapping software and Global Positioning System (GPS) devices are used regularly by travelers and commuters. Since these devices and apps are updated in real time with user-supplied information, they have become associated with a number of problems. While commuters attempt to avoid traffic on highways, they often create traffic on smaller, local roads that are less able to handle this new burden. Users also lose a sense of their geographical surroundings as they rely more on mapping software or GPS devices for navigation.

Carefully read the following six sources, including the introductory information for each source. Write an essay that synthesizes material from at least three of the sources and develops your position on the value, if any, of mapping software and devices.

Source A (Foderaro article)

Source B (National Research Council book)

Source C (graph from He)

Source D (Grabar article)

Source E (chart from BuildFire)

Source F (Paulas article)

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Select and use evidence from at least three of the provided sources to support your line of reasoning. Indicate clearly the sources used through direct quotation, paraphrase, or summary. Sources may be cited as Source A, Source B, etc., or by using the description in parentheses.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Source A

Foderaro, Lisa W. “Navigation Apps Are Turning Quiet Neighborhoods Into Traffic Nightmares.” *The New York Times*, 24 Dec. 2017, www.nytimes.com/2017/12/24/nyregion/traffic-apps-gps-neighborhoods.html.

The following is excerpted from an online article published in a national newspaper.

It is bumper to bumper as far as the eye can see, the kind of soul-sucking traffic jam that afflicts highways the way bad food afflicts rest stops.

Suddenly, a path to hope presents itself: An alternate route, your smartphone suggests, can save time. Next thing you know, you’re headed down an exit ramp, blithely following directions into the residential streets of some unsuspecting town, along with a slew of other frustrated motorists.

Scenes like this are playing out across the country, not just in traffic-choked regions of the Northeast. But one town has had enough.

With services like Google Maps, Waze and Apple Maps suggesting shortcuts for commuters through the narrow, hilly streets of Leonia, N.J., the borough has decided to fight back against congestion that its leaders say has reached crisis proportions.

In mid-January, the borough’s police force will close 60 streets to all drivers aside from residents and people employed in the borough during the morning and afternoon rush periods, effectively taking most of the town out of circulation for the popular traffic apps—and for everyone else, for that matter.

“Without question, the game changer has been the navigation apps,” said Tom Rowe, Leonia’s police chief. “In the morning, if I sign onto my Waze account, I find there are 250,000 ‘Wazers’ in the area. When the primary roads become congested, it directs vehicles into Leonia and pushes them onto secondary and tertiary roads. We have had days when people can’t get out of their driveways.”...

Waze defends its practice of rerouting motorists from congested highways through residential streets in nearby communities. And the company says it shares free traffic data with municipal planners nationwide who might, for instance, want to monitor the effectiveness of a new time sequence for a traffic signal.

Terry Wei, a spokeswoman for Waze, said the app benefited from a community of local volunteer editors who ensure that the maps stay up-to-date and reflect the local law. “If a road is legally reclassified into a private road,” she said, “our map editors will make that change. It is our goal to work holistically with our community of drivers, map editors and city contacts to improve the driving experience for all.”

From *The New York Times*. © 2017 The New York Times Company. All rights reserved. Used under license.

Source B

National Research Council. *Understanding the Changing Planet: Strategic Directions for the Geographical Sciences*, 2010, doi.org/10.17226/12860.

The following is excerpted from a book about geographical sciences.

The popularity of Web mapping sites such as Google Maps, Google Earth, and Microsoft Virtual Earth has exploded in recent years. Particularly in wealthier parts of the world, these sites have become a central part of daily life (the “next utility”) as they are used to navigate to places of work, pleasure, and commerce, and to allow citizens to increase their knowledge of the world. Not only do people want to receive information from these sites; they increasingly want to share it as well. Sites, such as Wikimapia.org, OpenStreetMap.org, MapAction.org, and Flickr.com are empowering millions of citizens to create a global patchwork of geographical information. This information is already serving society in many ways—assisting in local tourism and community planning, disaster response (e.g., citizen maps of Southern California fires), humanitarian aid, habitat restoration, public health monitoring, and personal assessments of environmental impacts. This citizen mapping “workforce” is largely untrained, under no authority, and the mapping is often done for no obvious reward (Goodchild, 2007).

Goodchild (2007) terms this recent phenomenon “volunteered geographic information” (VGI), wherein a private citizen participates in the creation, assembly, and dissemination of geographical information on the Web. The information is “volunteered” primarily by adding a geographical identifier (known also as a geotag) to a Wikipedia article, photograph, or video, or by adding one’s own geographical data to an interactive, Web-based map, often by marking locations of certain features that are of importance, places where various events have occurred, or places where an individual has been or would like to go ... For those with more advanced computing skills, Google Earth and other virtual globes are providing ways for citizen mappers (known also as neogeographers) to develop their own mapping applications, such as geoGreeting, which create greeting messages in Google Maps spelled out in satellite images of real buildings from all over the world that happen to be shaped as letters when viewed from above. VGI can be a boon, for example, to international development and humanitarian relief organizations, which can supply these organizations with the most up-to-date detailed data....

The power of such Web sites to increase the efficiency, pleasure, and safety of our lives is becoming increasingly apparent.

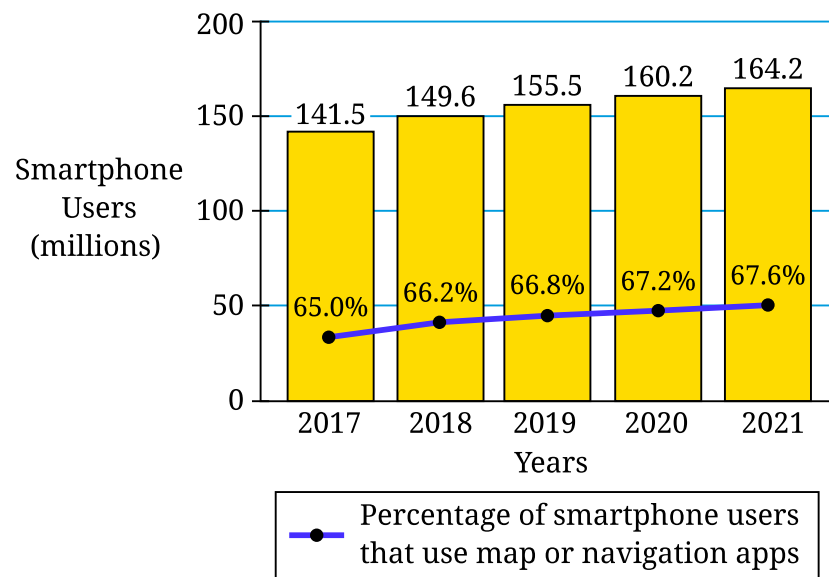
National Research Council. 2010. *Understanding the Changing Planet: Strategic Directions for the Geographical Sciences*. doi.org/10.17226/12860. Reprinted with permission by the National Academy of Sciences, Courtesy of the National Academies Press, Washington, D.C.

Source C

He, Amy. “People Continue to Rely on Maps and Navigational Apps.” *Insider Intelligence*, 18 July 2019, www.emarketer.com/content/people-continue-to-rely-on-maps-and-navigational-apps-emarketer-forecasts-show.

The following is adapted from a graph published in an article forecasting market trends.

Smartphone Map/Navigation App Users (US, 2017–2021)

**Source D**

Grabar, Henry. “Smartphones and the Uncertain Future of ‘Spatial Thinking.’” *Bloomberg*, 9 Sept. 2014, www.bloomberg.com/news/articles/2014-09-09/smartphones-and-the-uncertain-future-of-spatial-thinking.

The following is excerpted from an online business magazine.

Wayfinding¹ is certainly easier than ever before. The advent of self-driving cars, projected to make up a sizable share of the American auto market by 2030, represents the culmination of the cartographer’s ancient quest to eliminate human effort and error from navigation. Even the classic dashboard GPS, according to Nick Cohn, a traffic expert at TomTom, induces a state of rest. “The overall effect is that people are more calm when they’re using navigation,” he says. By extension, they drive safer.

Your brain is indeed relaxing. In a handful of studies conducted over the last decade in the United States, England, Germany and Japan, researchers have shown that GPS navigation has a generally pernicious² effect on the user’s ability to remember an environment and reconstruct a route. Toru Ishikawa, a spatial geographer at the University of Tokyo, quantified the difference in a study published earlier this year. Asked to recall various aspects of their surroundings, participants using GPS navigation performed 20 percent worse than their paper-map peers.

As Ishikawa pointed out to me, these findings raise questions beyond urban anthropology. Spatial thinking helps us structure, integrate, and recall ideas. It’s less an independent field of study than a foundational skill; a 2006 report from the National Research Council called spatial literacy the “missing link” in the K-12 curriculum at large.

Navigating is among the greatest incubators of that ability. A sophisticated internal map, as a famous study of London cab drivers showed, is tied to greater development in the hippocampus, the brain region responsible for spatial memory. In another study, participants with stronger hippocampus development tended to navigate with complex cognitive maps, while those with less developed spatial memory memorized turn-by-turn directions.

Isn’t it ironic: the easier it is for me to get where I’m going, the less I remember how I got there. As a conscious consumer of geographic information, should I be rationing my access to navigation tools—the mental equivalent of taking the stairs instead of taking the elevator?

Used with permission

1: the process of navigating to a destination

2: harmful

Source E

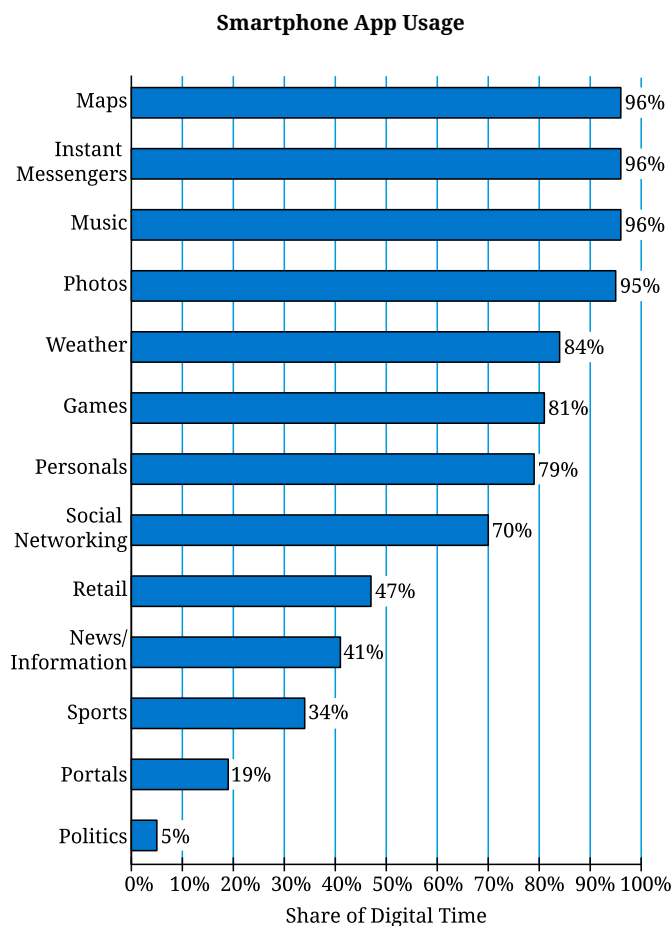
“Mobile App Download and Usage Statistics (2024).” *BuildFire*, n.d., buildfire.com/app-statistics/.

The following is adapted from a chart of digital application usage published on an app developer website.

Digital content can be consumed from so many devices.

People have smartphones, tablets, desktop computers, and laptops. You can even access content and apps from smart TVs, watches, smart home devices, and smart vehicles.

But there are certain categories that are dominated with smartphone app usage. These are the top categories that people turn to their smartphones for.

**Source F**

Paulas, Rick. “For the Good of Society—and Traffic!—Delete Your Map App.” *Intelligencer*, Vox Media, 11 Dec. 2017, nymag.com/intelligencer/2017/12/waze-and-google-maps-create-traffic-in-cities.html.

The following is excerpted from an article published in an online magazine.

Pull up a simple Google search for “neighborhood” and “Waze,” and you’re bombarded with local news stories about similar once-calm side streets now the host of rush-hour jams and late-night speed demons. It’s not only annoying...it’s a scenario ripe for accidents; among the top causes of accidents are driver distraction (say, by looking at an app), unfamiliarity with the street (say, because an app took you down a new side street), and an increase in overall traffic.

“The root cause is the use of routing apps,” says Bayen, “but over the last two to three years, there’s the second layer of ride-share apps.”

It’s worth breaking down the layers. The first is the large number of drivers that utilize the apps, a percentage that grows by the day. In 2011, Waze had 7 million downloads; that number climbed to 50 million by 2013, and 65 million in 185 countries by 2016. Meanwhile, Google Maps has well over 1 billion monthly users.

The second, newer layer is the fleet of ride-share vehicles. There are an estimated 45,000 Uber and Lyft drivers in San Francisco, compared to 1,500 cab drivers. The two ride-sharing titans have each designed their own mapping apps—Lyft Navigation and Uber Driver—but Navigation was built using Google Maps, and Uber’s app has yet to be fully rolled out...Whatever the device, it’s one dictated on concrete route efficiency, as opposed to the whims of cab drivers, who use thoroughfares or “their own” shortcuts.

All that extra traffic down previously empty streets has created an odd situation in which cities are constantly playing defense against the algorithms.

“Typically, the city or county, depending on their laws, doesn’t have a way to fight this,” says Bayen, “other than by doing infrastructure upgrades.”

Fremont, California, has lobbied some of the harshest resistance, instituting rush-hour restrictions, and adding stop signs and traffic lights at points of heavy congestion. San Francisco is considering marking designated areas where people can be picked up or dropped off by ride-shares....Los Angeles has tinkered with speed bumps and changing two-way streets into one-ways....

My favorite coalition of grumps have been the residents of Takoma Park, Maryland, who actually spent time falsifying accident reports to Waze in order to prompt the algorithm to shift the route elsewhere. But all of the actions, either infrastructure changes performed by the city or hacks by community groups, have the same intended purpose: “I will make driving through our neighborhoods more difficult, so you will not use the street,” says Jeff Ban, a professor of civil and environmental engineering at the University of Wisconsin.

Perhaps you see the problem. If cities thwart map apps and ride-share services through infrastructure changes with the intent to *slow traffic down*, it has the effect of *slowing down traffic*. So, the algorithm may tell drivers to go down another side street, and the residents who’ve been griping to the mayor may be pleased, but traffic, on the city whole, has been negatively affected, making *everyone’s* travel longer than before.

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2. Raquel Vasquez Gilliland is a Mexican American poet, novelist, and painter whose works focus on myths, folklore, motherhood, and plants. In 2023 she published an opinion article in *The New York Times* titled “Go Outside, Sink Your Feet Into the Dirt and Engage With the World.” The following is an excerpt from that opinion article. Read the passage carefully. Write an essay that analyzes the rhetorical choices Vasquez Gilliland makes to develop her argument about the value of engaging with nature.

In your response you should do the following:

- Respond to the prompt with a thesis that analyzes the writer’s rhetorical choices.
- Select and use evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Demonstrate an understanding of the rhetorical situation.
- Use appropriate grammar and punctuation in communicating your argument.

Par.
1 My grandmother and mother also taught me that the natural world around us has stories to tell if you listen closely. After all, language is not unique to humans. One of my earliest memories is sitting on my grandmother’s cracked concrete porch, watching one of the many doves she had nursed back to health land in her raised hand after she called out to it. When dark storm clouds gathered over the half-finished roof, my mother would take a steak knife from the kitchen to the sky to cut the rain away. My friends thought it was magical how nature seemed to bend to their will.

2 It makes sense, then, that I became an author, that my life is built around stories—that the idea of my first novel came tumbling to me when I was out on a walk, as if a piece of the sky had been cut over me. And whenever I am overwhelmed or anxious or stuck in my work, my mother’s advice to me is always the same: Go outside. Be in nature.

3 Our busy schedules can make it hard to find time to spend in nature, and it may seem especially hard in urban areas. But at a time when so many Americans are struggling with loneliness and isolation, spending a few moments outdoors can help us feel more connected.

4 Fortunately, there are several easy things you can do to get out in nature, no matter where you live. You can start by sinking your bare feet in a patch of dirt and consider the ways by which the soil nourishes the plants and animals that in turn nourish us. Maybe you can find a tree to befriend, be it a pine, mango or tulip tree. Use all your senses to engage with it—observe its leaves, feel the smooth wrinkles of its bark.

5 When I lived in New York and Los Angeles, I’d have to hike very far to find a piece of nature to be in—the rare tree in downtown Los Angeles, the canopy of ginkgoes near Inwood Hill Park in New York City. Now, in East Tennessee, I walk a few steps past my porch, into my garden—two small strips of land that flank my two-story white and turquoise farmhouse.

6 When I first moved here, nonnative European grass blanketed the thirsty clay, red as dried blood. I bought a shovel and set about digging up eight garden beds in the middle of that grass, filling them with plants native to my region: coneflowers and aromatic aster, bee balm and Virginia blue bells. I tried growing squash, peppers, yellow watermelon and white eggplant, but the plants languished and many didn’t yield any fruit at all. My land seems to want nothing but flowers. So I am trying my hand at breeding zinnias, cosmos and dahlias instead. Each bloom, as rich as a jewel, now attracts butterflies and hover flies and bees to feast where there was once nothing but a wasteland.

7 If I am creatively blocked, I walk barefoot on the earth, no matter the season, allowing stories to feed the roots of my entire body. If I have a plot hole I need to fix, I visit my lemon and lime basil, staining my fingers with their citrus scents. If I need to make my writing more lyrical, I sit with the dahlias, imagining that their vast genetic possibilities fill me when I speak with them.

8 When the summer gives way to cooler nights, my focus moves from leaves and blooms to the change in the angle of the sunlight. I think about how many times it has shifted over the entire lineage of humans, signaling to the trees to change from green to citrine, smoky topaz and shades of ruby. I reminisce about how I sat in that same autumnal light as a child, listening to the stories of my elders.

9 You, too, can listen to my mother’s advice and see what the land has to say to you—be it a wide hillside of bluestem grass or a single window box filled with petunias. If the practice of listening to the earth and the beings that inhabit it feels inauthentic, consider that humans have long been in dialogue with the natural world. Indeed their survival depended on their connection with the land and discerning what it had to say. When they died, what was left of them in turn nurtured it, too.

10 It could be that newly sprouted blooms or subtle shifts in sunlight signaled the changing of seasons—giving them instructions. Perhaps your ancestors, as mine most likely did, believed that the world around them was populated with sentient beings that communicated with them. I like to think that the stories my grandmother still tells when I sit at her table have inklings of those the animals, trees and rivers shared with our ancestors. Paying attention to what the land has to say is how I honor this legacy.

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3. Amanda Gorman is the first National Youth Poet Laureate of the United States, an honor given to a young person for exceptional artistic expression, civic engagement, and social impact. In a 2021 interview in *Time* magazine, when asked how to maintain optimism¹ in challenging times, Gorman stated: “Optimism shouldn’t be seen as opposed to pessimism,² but in conversation with it. Your optimism will never be as powerful as it is in that exact moment when you want to give it up.”

1: a tendency to view things in a positive light

2: a tendency to view things in a negative light

Write an essay that argues your position on the extent to which Gorman’s claim about the relationship between optimism and pessimism is valid.

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Provide evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

STOP
END OF EXAM

ENGLISH LANGUAGE AND COMPOSITION

SECTION II

Total time—2 hours and 15 minutes

3 Questions

Question 1

Suggested reading and writing time—55 minutes

It is suggested that you spend 15 minutes reading the question, analyzing and evaluating the sources, and 40 minutes writing your response.

Note: You may begin writing your response before the reading period is over.

(This question counts as one-third of the total essay section score.)

Historic preservation laws are intended to protect buildings deemed to be of historic, cultural, or architectural value. The laws affect both government buildings and private property, putting constraints on how and to what extent the structures can be altered, renovated, or replaced. Proponents of these laws claim they are necessary for the preservation of history and culture and the architectural integrity of a neighborhood. Opponents of the laws argue that such laws prevent progress and negatively impact real estate development, building renovation, and building design.

Carefully read the following six sources, including the introductory information for each source. Write an essay that synthesizes material from at least three of the sources and develops your position on the value, if any, of laws designed to preserve buildings deemed to be of historic importance.

Source A (National Park Service Web site)

Source B (Merlino book)

Source C (Appelbaum opinion article)

Source D (Webb graph)

Source E (Martin article)

Source F (Rosen cartoon)

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Select and use evidence from at least three of the provided sources to support your line of reasoning. Indicate clearly the sources used through direct quotation, paraphrase, or summary. Sources may be cited as Source A, Source B, etc., or by using the description in parentheses.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Source A

“National Historic Preservation Act.” *National Park Service*, U.S. Department of the Interior, 2 Dec. 2018, nps.gov/subjects/historicpreservation/national-historic-preservation-act.htm.

The following is excerpted from a Web site maintained by the United States National Park Service.

After World War II, the United States seemed poised at the edge of a limitless future, and its vision of progress was characterized by the sleek and the new. Urban renewal was seen as a way to clear out the slums, get rid of “obsolete” buildings, make space for an exploding population, and accommodate the burgeoning car culture. Wide swaths were demolished: entire blocks, neighborhoods, business districts, all razed to make way for the new. By the 1960s, urban renewal had altered the face of the nation’s cities.

But out of this wholesale erasure of the old grew the most important law governing how we treat those places that define our past: the National Historic Preservation Act. It was the first national policy governing preservation and it would shape the fate of many of our historic and cultural sites over the next half-century. There had been earlier measures to foster preservation—the Antiquities Act of 1906 and the Historic Sites Act of 1935—but none were as sweeping or as influential as the National Historic Preservation Act.

In 1965, President Lyndon B. Johnson convened a special committee on historic preservation. The committee studied the dismal situation, then delivered a report to Congress. Their report, called *With Heritage So Rich*, became a rallying cry for the preservation movement. Up until that time, the National Park Service’s Historic American Buildings Survey (HABS) had documented 12,000 places in the United States. By 1966, half of them had either been destroyed or damaged beyond repair. . . .

Before the year was out, Congress passed the National Historic Preservation Act. It was the most comprehensive preservation law the nation had ever known. The act established permanent institutions and created a clearly defined process for historic preservation in the United States.

Historic structures that would be affected by federal projects—or by work that was federally funded—now had to be documented to standards issued by the Secretary of the Interior. The law required individual states to take on much more responsibility for historic sites in their jurisdictions. Each state would now have its own historic preservation office and was required to complete an inventory of important sites. The law also created the President’s Advisory Council on Historic Preservation and the National Register of Historic Places, an official list not only of individual buildings and structures, but also of districts, objects, and archeological sites that are important due to their connection with the past. . . .

With the passage of the act, preservation in the United States became formalized and professionalized. The National Historic Preservation Act was tied to a growing awareness of the past and of community identity. Many communities realized that there was an unexpected economic force behind preservation. The act helped foster heritage tourism, attracting visitors who wanted to experience the past in ways that no book or documentary could match. The distinctive character of old architecture and historic districts became a powerful draw for many Americans, and antidote to anonymous suburbs and strip malls.

Source B

Merlino, Kathryn Rogers. *Building Reuse: Sustainability, Preservation, and the Value of Design*. University of Washington Press, 2018.

The following is excerpted from a book advocating for more reuse of existing buildings.

In the United States, the recognition of value in buildings began with the identification and preservation of historical structures that had played an important part of the story of creating our nation. Historic designation usually takes into consideration national standards of significance set within specific boundaries: to be designated, a building must be proven to be associated with an important moment in local or national history, or with a historical individual or group, or must represent an exceptional architectural style or tradition. Of course, the question of what should be considered “significant” historical and cultural value in a building is often hotly debated by owners, historians, politicians, community groups, and other interested parties. When the terms of significance can’t be established or agreed upon, it becomes practically impossible to “officially” declare something historic—and suddenly, the building lacks “value.” For this reason, basing preservation decisions solely on whether a building has been designated as “historic” significantly limits the way we value and preserve existing buildings. In effect, the word *historic* saves them, but *old* or *existing* does not, and anyone who wants to demolish a building can simply argue that the building lacks historical significance. Considering that “nonhistoric” buildings comprise the vast majority of our existing building stock, we need to broaden our definition of *value* if we are to maintain cultural and environmental sustainability.

Attaching value to buildings exclusively for their architectural, cultural, or historic significance is problematic in three ways. First, only buildings with the highest historic status are considered valuable enough to be protected from demolition, but this type of building represents only a small percentage of designated buildings. As a result, the majority of historic designations are primarily honorific; and while they provide financial incentives for maintaining a building’s character and may give it greater stature and recognition, they do not protect it from demolition. Second, the historic designation process is piecemeal and irregular—and therefore complicated, time-consuming, and discouraging. The result is that only a small fraction of eligible buildings are even nominated, and those that win registry constitute a tiny portion of the buildings that—by the same standards—would qualify. Finally, attaching value to buildings exclusively because of their notarized historical significance ignores the fact that all buildings inherently hold value as *environmental* artifacts. They are repositories of extracted and manufactured materials and represent expended energy and carbon emissions; and as such, they hold great value as environmental resources. Consequently, while we rigorously recycle our paper, glass, and metal, we do not apply this ethic to our largest manufactured artifacts, our buildings. Regarding our existing building stock as an environmental resource is essential to advancing any agenda of sustainability.

The opportunities that older buildings offer are enormous. Older buildings not only have worth as resources of materials but also can be retrofitted with energy-efficient technologies for high performance. In fact, some older buildings already have a head start. Studies show that many older buildings already perform as well as or better than new buildings by many measures.

Source C

Appelbaum, Binyamin. "When Historic Preservation Hurts Cities." *The New York Times*, 26 Jan. 2020, nytimes.com/2020/01/26/opinion/historic-preservation-solar-panels.html.

The following is excerpted from an opinion article published in a national newspaper.

I live in a historic neighborhood in the heart of Washington, D.C. It's not historic in the sense that anything especially important happened here—certainly not in the modest rowhouses that make up the bulk of the neighborhood. What "historic" means, here and in cities across the country, is that this is a neighborhood where buildings are not supposed to change.

The law says window frames on Capitol Hill must be wooden, or something that looks very much like wood. If a front door has two parts and opens down the middle, it cannot be replaced by a single door that swings open from the side. If the house was built two stories tall, it must remain two stories tall—unless the addition can't be seen from the street.

Humans don't like change, so it's not surprising that historic preservation laws have become quite popular. There are now more than 2,300 local historic districts across the United States, and I know many people who would like to have their own neighborhood frozen in time.

But historic preservation comes at a cost: It obstructs change for the better. And while that price is generally invisible, it is now on public display because of the city's efforts to prevent Washington homeowners in historic neighborhoods from installing visible rooftop solar panels. . .

"I applaud your greenness, and your desire to save the planet . . ." Chris Landis, an architect who sat on one of the boards that pass judgment on proposed changes to Washington homes, told a homeowner in October who had the temerity to request permission to install 12 front-facing solar panels on his own roof. "But I just have this vision of a row of houses with solar panels on the front of them and it just—it upsets me, as somebody who's supposed to protect the architectural fabric of a neighborhood."

From *The New York Times*. © 2020 The New York Times Company. All rights reserved. Used under license.

Source D

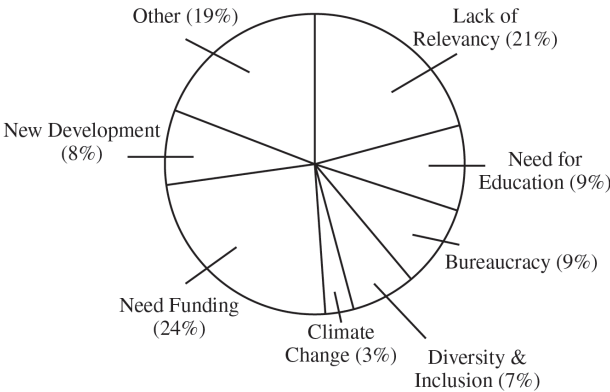
Webb, Amy. "Building Relevance: What Are the Top Challenges Facing Preservation?" *National Trust for Historic Preservation: Preservation Leadership Forum*, 8 Oct. 2020, forum.savingplaces.org/blogs/amy-webb1/2020/10/08/survey-top-challenges-facing-preservation.

The following is based on a graph from a survey on preservation, conducted by a nonprofit organization dedicated to preserving historic structures. The graph shows historic preservation professionals' responses to the question "What are the top challenges to preserving historic places?"

While survey respondents identified a broad range of issues, the top seven preservation challenges as of the fall of 2019 . . . included:

1. Need for funding
2. Need to communicate the relevancy of preservation
3. Pressures from new development
4. Bureaucratic [complicated administrative] nature of some preservation processes
5. Need to educate the next generation of preservationists, particularly in the preservation trades
6. Lack of diversity in the preservation movement
7. Risks posed by climate change

WHAT ARE THE TOP CHALLENGES TO PRESERVING HISTORIC PLACES?



Source E

Martin, Shayla. “Can a Grassroots Movement Save Harlem’s Culturally Rich Buildings? We Talked to the Women Preserving the Neighborhood’s History.” *Veranda*, 19 Aug. 2021, veranda.com/home-decorators/a37189748/preservation-of-harlem/.

The following is excerpted from an article published in a magazine focused on home design.

Valerie Jo Bradley is one of the cofounders of Save Harlem Now!, a nonprofit advocacy group that formed to preserve buildings and landscapes that contain important African American history from the early 20th century. “We realized we’ve got to be organized and proactive to deal with the fact that only 3.7 percent of Harlem’s buildings are landmarked compared to 66 percent of Greenwich Village and 50 percent of the Upper West and Upper East sides.”

Since its establishment in 2015, the group has worked with the Landmarks Preservation Commission to designate key buildings and historic districts for legal protection (among them, the rowhouse-rich area of West 130th and 132nd streets between Lenox Avenue and Adam Clayton Powell Jr. Blvd.; the Harlem branch of the New York Public Library, frequented by [Langston] Hughes and fellow writer James Baldwin, is also on their list). This year, Save Harlem Now! received a grant from the National Trust for Historic Preservation’s African American Cultural Heritage Action Fund to bolster their preservation efforts.

And not a moment too soon. Since the early aughts,¹ development in Harlem has ramped up, replacing endemic boutiques, coffee shops, grocery stores, and even the architectural vernacular itself with mirrors of other urban landscapes.

“[Bradley] sees historic district designation as a way to slow down development trends, or at least to ensure that the physical history and cultural legacy is retained in Harlem, and I agree with her,” says Brent Leggs, executive director of the Action Fund. “Preservation is people-centered. Although we’re using old things—old buildings, old stories—it’s really about leveraging the power of place to have a positive impact on people’s lives right now in the present moment,” Leggs adds. “A lot of our work examines the different tools that can be used to mitigate both racial and cultural displacement. And the preservation efforts happening now in Harlem really highlight the ways that the culture is retained.”

Of course, preservation alone will not stave off gentrification,² but it’s an essential component, adds Darren Walker, president of the Ford Foundation and co-chair of the National Advisory Council of the Action Fund. “Without ensuring that people have access to critical resources like affordable housing and good jobs in their communities, we won’t be able [to] preserve the essence of what makes places like Harlem so special: its residents.”

Under Walker’s leadership, the Ford Foundation’s America’s Cultural Treasures Initiative has made unprecedented investments in significant arts centers in Harlem, including the Apollo Theater, Dance Theatre of Harlem, and the Studio Museum in Harlem. “We want these anchors of our community—and the people who live there—to remain resilient and not get swept away in the tidal wave of gentrification Harlem is experiencing,” he says. Also on Walker’s list: keeping larger cultural institutions rooted in Harlem, places like

the Schomburg Center for Research in Black Culture, one of the leading worldwide archives for information on people of African descent, and Mother AME Zion Church, the oldest African American church in New York City.

¹ early 2000s

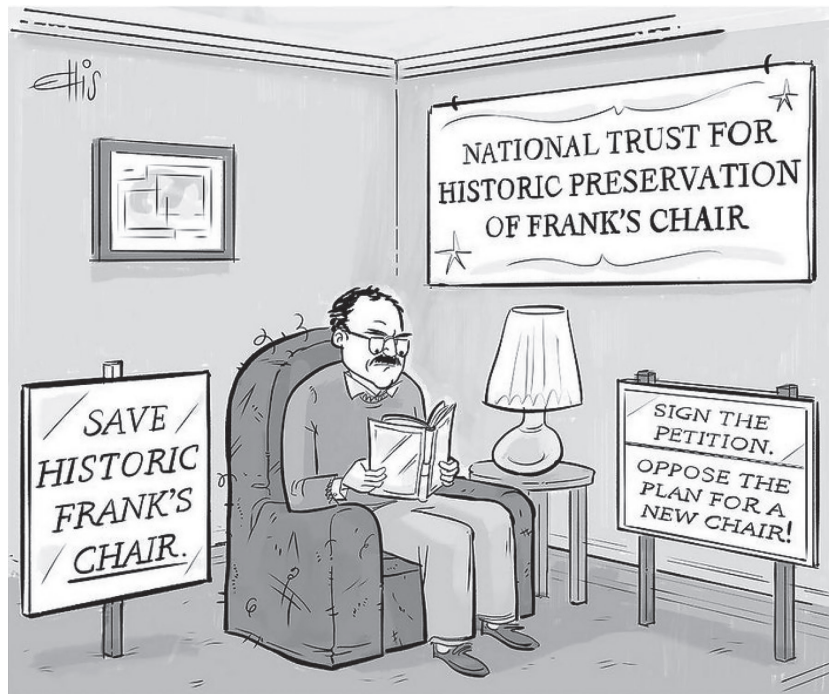
² process in which a neighborhood or area is changed or renovated through the influx of middle-class residents and businesses, often displacing the original residents of the area

by Shayla Martin, *Veranda*, Hearst Magazine Media, Inc.

Source F

Rosen, Ellis. "National Trust for Historic Preservation of Frank's Chair." *New Yorker Collection*, 3 Jan. 2022, condenaststore.com/featured/national-trust-for-historic-preservation-of-franks-chair-ellis-rosen.html.

The following is a cartoon from the collection of a weekly magazine of journalism and culture.



Ellis Rosen
The New Yorker Collection
The Cartoon Bank; © Condé Nast

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 2

Suggested time—40 minutes

(This question counts as one-third of the total essay section score.)

Reshma Saujani is an attorney, author, and activist who founded Girls Who Code, an organization that works to advance opportunities for girls and women to find careers in the technology sector. The following passage is excerpted from Saujani's contribution to *American Like Me: Reflections on Life Between Cultures*, a 2018 anthology of essays by prominent Americans with backgrounds in multiple cultures. The excerpt begins after Saujani discusses founding a multicultural student organization at her high school. Read the passage carefully. Write an essay that analyzes the rhetorical choices Saujani makes to convey her message about the nature of bravery.

In your response you should do the following:

- Respond to the prompt with a thesis that analyzes the writer's rhetorical choices.
- Select and use evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Demonstrate an understanding of the rhetorical situation.
- Use appropriate grammar and punctuation in communicating your argument.

Years later, when I ran for political office for the first time, I was exercising my bravery again. I had enjoyed several years of a lucrative career at a Wall Street law firm but longed to make my life more about helping to build communities and improving the future of this country. I wanted to push myself. And much like barging into Schaumburg High to start a diversity club, the idea of running for public office felt good—like I was flexing that bravery muscle again. So I bravely quit my job. I bravely ran for Congress. And I bravely lost by a landslide.

But I did it authentically, as myself, as *Reshma*. In the early stages of campaigning, I was told to change my name to Rita, given the advice that people are more likely to vote for you if they can pronounce your name. But my bravery had brought me this far. I wasn't going to stop now. I could never turn my back on Reshma to become a Key-Chain Rita.¹ And losing authentically allowed me to articulate something I was passionate about. I wanted to find a way to address the fact that American girls are often raised to value perfection over bravery. They want to be Sweet Valley Jessicas² instead of Schaumburg³ Reshmas. So I ran my campaign on a platform of bringing computer science into every classroom and making sure girls were given equal access to learning coding. I focused on this because the process of learning to

code—building something from the ground up, using trial and error, failing and starting over—allows you to see for yourself that perfection is pretty pointless. And bravery leads to wonderful things.

I should know. After the election loss, I had the gall to start a national nonprofit called Girls Who Code, and I don't even know how to code, myself.

But thanks to my childhood, growing up with two very brave immigrants as parents—who just like me were children of immigrants in Uganda—I now know it is more important than ever to be brave and proud of my identity, to own my role in changing the world, one election loss at a time.

Yes, I did run for office again a few years later. And yes, I lost again. But bravery is contagious.

On election day, I was running around in the rain shaking voters' hands up to the very last minute. I met a woman—I did not catch her name—who was rushing to the polls. As she passed by me, I smiled and said, "Who are you voting for today?"

She hesitated, flustered but kind. Embarrassed she couldn't pronounce it correctly, she fumbled out an *uhh* as she frantically pulled one of my fliers from her bag.

"This woman," she said as she pointed at my name on the piece of paper.

Even though she needed a cheat sheet to remember

5 who she was voting for, I couldn't help but swell with pride that I had an Indian name. I couldn't help but think of my parents. When they chose to name me Reshma, did they dream of a world where it would be unthinkable to go by Rita instead? I had spent years
7 assimilating as a child, and for the first time, I thought I knew why my parents named me Reshma.

Maybe they didn't want me to blend in as much as I thought. They blended in *so I wouldn't have to*. They paid the ultimate price for my authenticity. They gave up their community, their careers, their language, their
5 own *names*. These were the steep taxes they paid to make a better life for me. Assimilating in the ways my parents did can invite accusations. Changing your name and hiding your accent could be seen as passive
7 or fearful gestures. But my parents' immigrant experience reveals the great reserves of bravery and pride they had in order to survive in a new country with no familiar community of support. I think my

parents are the bravest people I know. They traded in
75 their names for the freedom and privilege I experience every day. Because of them, I have the platform to be brave. They built the stage I stood on at the PRISM⁴ assembly. They laid the groundwork for a little girl named Reshma to grow up and become the first
80 Indian-American woman to run for Congress.

They changed their names so I wouldn't have to.

¹ Earlier in the essay, Saujani recalls a childhood incident in which she was unable to find her name in a display of key chains with names printed on them.

² Sweet Valley is a fictional suburban community near Los Angeles that was the setting for a series of popular novels for young adults.

³ the suburb of Chicago, Illinois, where Saujani grew up

⁴ acronym for Prejudice Reduction Interested Students Movement, the multicultural student organization Saujani founded

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 3**Suggested time—40 minutes**

(This question counts as one-third of the total essay section score.)

In a 2013 *New York Times* article on the practice of taking selfies, writer, editor, and podcast host J Wortham wrote: "Rather than dismissing the trend as a side effect of digital culture or a sad form of exhibitionism,¹ maybe we're better off seeing selfies for what they are at their best—a kind of visual diary, a way to mark our short existence and hold it up to others as proof that we were here."

Write an essay that argues your position on the extent to which Wortham's claim about the value of documenting one's life with selfies is valid.

¹ behavior that is meant to attract attention to oneself

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Provide evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

STOP**END OF EXAM**

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Acknowledgments

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ENGLISH LANGUAGE AND COMPOSITION

SECTION II

Total time—2 hours and 15 minutes

3 Questions

Question 1

Suggested reading and writing time—55 minutes

It is suggested that you spend 15 minutes reading the question, analyzing and evaluating the sources, and 40 minutes writing your response.

Note: You may begin writing your response before the reading period is over.

(This question counts as one-third of the total essay section score.)

Mobile food service establishments, such as food trucks and food carts, have become increasingly trendy in recent years, offering customers appealing and often innovative dining options out of vehicles that can easily be located near workplaces and leisure activities. These businesses have sometimes been held back from expanding because of local regulations that restrict their activities and require operators to obtain licenses and certifications. Proponents of these regulations say that laws are needed to ensure that the meals offered by mobile food services are safe and that these businesses do not have an unfair advantage over traditional restaurants.

Carefully read the following six sources, including the introductory information for each source. Write an essay that synthesizes material from at least three of the sources and develops your position on what are the most important factors for cities to consider when regulating mobile food service establishments.

- Source A (Baker article)
- Source B (New Orleans permit guide)
- Source C (U.S. Census Bureau graph)
- Source D (Meehan article)
- Source E (Neseman cartoon)
- Source F (Weber book)

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Select and use evidence from at least three of the provided sources to support your line of reasoning. Indicate clearly the sources used through direct quotation, paraphrase, or summary. Sources may be cited as Source A, Source B, etc., or by using the description in parentheses.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Source A

Baker, Linda. "Food Trucks 'Are No Longer a Novelty,' but They Are Adapting." *New York Times*, 5 Feb. 2019, www.nytimes.com/2019/02/05/business/food-truck-expansion-entrepreneurship.html.

The following is excerpted from a newspaper article about the food truck industry.

Enticing hungry customers and luring celebrity backers, food trucks have been quickly expanding nationwide for the last decade. But in pioneering cities like Austin, Tex., and Portland, Ore., the industry is feeling growing pains as fickle customers move on and regulators clamp down.

So entrepreneurs are finding new locations to park their mobile restaurants.

Last October, a development team created a new dining concept in an up-and-coming neighborhood of Charleston, S.C. Called the Container Bar, it features a bar constructed from a shipping container with space for four food trucks that rotate daily.

"Charleston has a reputation of being a culinary mecca, but it is unique in that there are no spaces for food trucks to congregate," said Brad Creger, one of three Container Bar owners. The others are Mike Veeck, president of the Charleston RiverDogs, a minor league baseball team, and the actor Bill Murray.

"One need go no further than Austin or Portland to see how food trucks have evolved into the culinary culture," Mr. Creger said. "Charleston is a little behind in that regard, but we're catching up very quickly."

Portland may be the aspirational model for many cities in the early stages of building a food cart¹ scene. But being a pioneer has its own challenges. A surge in new construction over the past couple of years has forced the closing of several food cart pods on former parking lots. Concern about the closings came to a head last fall with the news that the city's flagship food cart venue, the Alder Street pod, would be shuttered this summer to make way for the city's first five-star hotel.

"One hundred and thirty food carts are under threat to vanish," said Daniel Huerta, owner of the Portland food truck Churros Locos. "We are losing the culinary fabric that Portland is."

Street food vendors have been in big cities for decades. But a newer breed of entrepreneurs surfaced around 10 years ago as a scrappy response to the recession — it is far easier to secure start-up capital for a cart than a restaurant. Since then, it has morphed into a nationwide urban development and culinary business phenomenon. Revenue from food carts reached \$2.7 billion in 2017, according to a U.S. Chamber of Commerce study.

But as the industry matures, challenges are emerging. In some areas, owners are building mini empires, adding second or third trucks as well as brick-and-mortar restaurants. But elsewhere, regulatory and market pressures are creating a tough operating environment for vendors. Oversaturation and changing culinary tastes are also concerns.

¹ Food trucks and food carts are subject to similar regulations; in this article, they are referred to interchangeably.

Source B

"Mobile Food Truck Permit and License." *City of New Orleans One Stop Permits & Licenses*, City of New Orleans, n.d., nola.gov/nola/media/One-Stop-Shop/Revenue/Food-Truck-Permit-Guide.pdf.

The following is excerpted from an informational guide published on the City of New Orleans website.

FACTS AND REGULATIONS FOR PERMITTED MOBILE FOOD TRUCKS

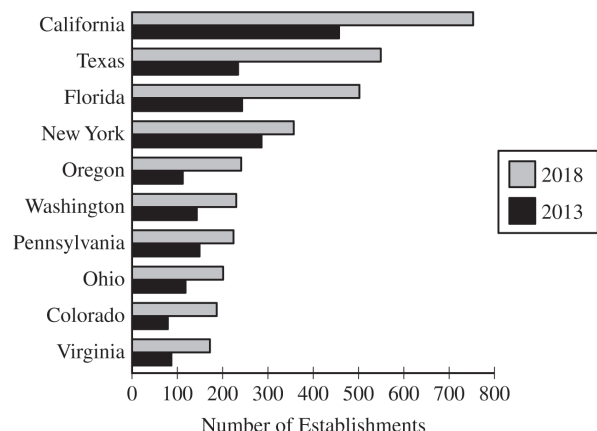
- **Food Truck permits and licenses expire on December 31st** and renewals are required by January 31.
- **As of January 1, 2014**, there is a **limit of 100 mobile Food Truck Permits per calendar year**. No permit shall be issued until the City receives and approves a completed application.
- There is **no proximity restriction from restaurants** for food trucks.
- Licenses and permits must be displayed and affixed to the front windshield in the lower corner on the passenger side.
- Vendors must obey all applicable parking, traffic and vehicle safety laws, regulations, and restrictions. **This includes the feeding of parking meters.**
- Trucks **can remain in one location no longer than 4 hours**.
- Trucks may only sell food; no other goods, wares, or other items may be sold.
- **Mobile food trucks may not operate:**
 - Within 20 feet of any intersection;
 - Within 20 feet of any stop sign, flashing beacon, yield sign, or other traffic control signal located on the side of a roadway;
 - Within 3 feet of any public or private driveway, wheelchair ramp or bicycle ramp;
 - In any manner that impedes an exit or entrance of an operating building.
- **No vendor may sell alcoholic beverages**, controlled substances, or any other illegal item.
- **No furniture**, or any other objects can be placed in the street, sidewalk, or any right-of-way, except a trash receptacle.
- **All vendors must provide a trash receptacle** within three feet of the front or back of the truck on a public street.
- **All vendors must keep a 50 foot radius around the truck clean** during operation and upon ceasing operation.
- **No horns, amplification systems, or other sound-producing devices or music systems** which can be heard outside of the truck may be used.
- **No third party advertising** may be displayed on any mobile food truck.

Source C

Hait, Andrew W. “Fast-Growing Food Truck Industry Can Operate Amid COVID-19 Social Distancing Rules, No Indoor Seating Orders.” *United States Census Bureau*, 2 Sept. 2020, www.census.gov/library/stories/2020/09/food-trucks-one-way-to-eat-out-during-pandemic.html.

The following is adapted from a graph published by the U.S. Census Bureau.

Number of Mobile Food Services Establishments



Source D

Meehan, Sarah. “Challenges to Food-Truck Restrictions Cropping Up beyond Baltimore.” *Baltimore Sun*, 26 May 2016, www.baltimoresun.com/food-drink/bs-fo-food-truck-300-foot-rule-20160526-story.html.

The following is excerpted from a newspaper article about food truck regulation in Baltimore.

The turf battle brewing in Baltimore involving the city’s food trucks is one that is playing out across the country as mobile vendors fight to park where they want, when they want.

Food truck owners Nikki McGowan and Joey Vanoni teamed up this month with a national legal advocacy group to sue the city of Baltimore, contending that a rule that prohibits mobile vendors from operating within 300 feet of businesses that sell similar products is an unconstitutional, protectionist measure.

Parking restrictions on food trucks have affected entrepreneurs as close as Baltimore County and as far away as San Antonio, where a law similar to Baltimore’s buffer rule was repealed last year after a challenge from the same group at work in the Baltimore case, the Institute for Justice. Closer to home, Baltimore County doesn’t allow food trucks to park within 200 feet of restaurants. And the Annapolis city council is considering a bill that would expand the areas where food trucks can park but prohibit them from setting up within 100 feet of an established restaurant.

“From a national level, you’re seeing a major amount of push-back toward inefficient and inconsistent issues that are holding back this industry from growing as fast as it could,” said Andrew Alvarez, an industry analyst with the international market research firm IBISWorld.

Baltimore’s buffer law was enacted as part of a swath of measures to regulate the burgeoning local food truck industry. And some restaurant owners support the rule that prohibits food trucks from pulling up in front of their businesses. Brian McComas, president of the Federal Hill Hospitality Association and owner of Ryleigh’s Oyster, said it’s not about the competition.

“I actually support food trucks from the perspective of the culinary experience and the food scene of Baltimore City,” he said.

Rather, he said, it comes down to the commitment that brick-and-mortar restaurants make to the neighborhoods in which they are rooted, and the price they pay to do business there.

“I don’t see anything constitutional about parking your food truck or mobile restaurant within those distances of restaurants that are there 365 days a year, paying taxes, utilities, et cetera,” he said. “We’ve decided to be there every day of the year. We pay taxes, and unless they can tell us otherwise how that would work, why would we even want them taking a parking space?”

That’s especially true in areas like Federal Hill, where bars and restaurants are concentrated and parking comes at a premium.

Matt Geller, founder of the National Food Truck Association, said much of the controversy surrounding food truck regulation stems from the fact that the industry is relatively young. The U.S. food truck industry is worth \$857 million, according to a September 2015 report by IBISWorld, with annual growth of 9.3 percent.

“This is such a new industry, so people have these weird things they believe to be fair or unfair,” said Geller, who is also CEO of the Southern California Mobile Food Vendors Association. “People don’t know how to regulate it yet.”

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Source E

Neseman, Dale. “Full Service.” *Advertiser-News South*, Strauss News, 3 Feb. 2020, www.advertisernewssouth.com/opinion/cartoons/cartoon-full-service-LK840836.

The following is an editorial cartoon that appeared in an online local newspaper.



“Full Service” by Dale Neseman, from *Advertiser-News South*. © 2020, Strauss News. Used by permission.

Source F

Weber, David. *The Food Truck Handbook: Start, Grow, and Succeed in the Mobile Food Business*. Wiley, 2012.

The following is excerpted from a book on how to start a food truck business.

The Future of Food Trucks

Food trucks are far from hitting their peak. The market is still developing, and there are many opportunities for new operators who want to open trucks to sell food that they are passionate about. Technomic, a food industry consulting firm, reported in July 2011 that 91 percent of customers polled believe that food trucks are not a passing fad, but rather a trend with “staying power.” Growth in food trucks is driven by two major forces: the growth of a mobile food culture in new municipalities across the United States and the improved access to food that the trucks offer in these markets as well as established markets. Customers appreciate the value and quality of mobile food and will continue to embrace the industry so long as operators deliver clean, tasty, and interesting products at a fair price.

Food trucks are great for cities. They get customers out on the street and create a sense of community. As local municipalities learn the value of what food trucks have to offer in terms of tax revenues, job growth, tourism, activating public space, and fostering entrepreneurship, local regulations will improve. One of the most compelling aspects of food trucks is their ability to act as an incubator for entrepreneurs to start a viable, cash flow–positive business that they can grow into a brick-and-mortar establishment to become a more stable part of the community.

In addition to opportunities for food truck entrepreneurs, there is also a wide variety of opportunities in supporting industries that will develop as the food truck market matures. Food truck operators are looking for better trucks, more eco-friendly power supplies, quieter generators, small-run food manufacturers, more customizable insurance resources, more robust financing tools, marketing partners, and information technology resources.

It is an exciting time for mobile food in America. The industry is big and growing fast. I look forward to seeing what you will bring to the streets.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 2

Suggested time—40 minutes

(This question counts as one-third of the total essay section score.)

Simu Liu is an actor who has starred in television shows and movies, including *Shang-Chi and the Legend of the Ten Rings*. His 2022 memoir, *We Were Dreamers: An Immigrant Superhero Origin Story*, describes his experiences as a Chinese immigrant in Canada. Liu’s parents emigrated to Canada from China when Liu was a baby, leaving him with his grandparents. In the following excerpt from Liu’s memoir, the family is getting the four-year-old Liu ready to reunite with his father and travel to Canada himself. Read the passage carefully. Write an essay that analyzes the rhetorical choices Liu makes to convey his message about the experience of preparing to emigrate from China.

In your response you should do the following:

- Respond to the prompt with a thesis that analyzes the writer’s rhetorical choices.
- Select and use evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Demonstrate an understanding of the rhetorical situation.
- Use appropriate grammar and punctuation in communicating your argument.

In the summer of 1993 I noticed that my English flash card lessons were starting to pick up, along with talk that my departure date to Canada was drawing

even nearer.

I didn’t like that one bit.

My whole family—my yéye, nǎinai, gūgu, gūfū,¹ even my cousin JingJing—spoke of this “Canada” as if it were some sort of idyllic paradise, a place of abundant snacks and endless affection.

“You can eat whatever you want,” Nǎinai would say, as if I didn’t already have pretty regular access to all of my favorites on Hézìnglǜ.²

“You will finally reunite with your parents,” my gūgu added reassuringly, as if I didn’t already have five amazing people around me who loved me.

Looking back, it felt kind of cult-y, like gospel from the Church of Canadology that I was supposed to just accept. I played along, even though I was still rough on the exact terms of this proposition. Sure, I welcomed the thought of meeting more members of my family . . . but I had no idea that said new family members would come at the cost of everyone that I knew and loved.

So, with about as much agency as any four-year-old possessed, I kept on, ever the obedient child, dutifully memorizing my English flash cards. 苹果 (píngguo)—Apple. 猫 (māo)—Cat. 香蕉

(xiāngjiāo)—Banana. 爸爸妈妈 (bàbāmāma)

—Parents, whom I would meet in the winter.

An air of excitement permeated our household in the days leading up to my father’s arrival in late December. Word had come to us that Bàba³ would fly over to pick me up and escort me back to Canada, while Māma would meet us at the airport once we landed in Toronto. If my grandparents were dreading letting me go (they were), they went to great lengths not to show it. We made a big WELCOME BACK sign in giant letters and hung it on our door. I wore my nicest clothes on the day, an outfit of absolute fire consisting of a collared rugby shirt with blue and purple stripes, a pair of brown overalls with yellow polka dots and a vest that looked like a burlap sack. That’s right, I was pattern clashing way before it was cool.

My gūgu and gūfū came over and we prepared a feast that filled our little round table: white mushrooms with sliced pork, large tail-on shrimp, bean curd, soy-sauce ribs and Russian-style red sausage—my father’s favorite, apparently.

The food is starting to get cold when we hear a little knock on our door. I perk up anxiously as my yéye answers, opening the door to reveal a scrawny, square-faced man with bowl-cut hair wearing a big cozy sweater along with the bleary gaze of exhaustion

that comes after an eighteen-hour train ride from Beijing. This man who resembles an Asian Eric Forman from *That ’70s Show* is my bàba, the man who I had waited my entire four-and-a-half-year life to reunite with.

This is the man who is going to bring me to the promised land of Canada.

“Máomao!”⁴ It’s me!”

I freeze.

I had imagined this moment in my head many times, as I’m sure my father had. I wanted to run to him, embracing him enthusiastically and without any reservations, as any child would run to their own father—but I just . . . *can’t*. Everything about this man is foreign to me, from his voice to his smell. I had only seen his face in photographs, only heard recordings of his disembodied voice. He feels almost like a celebrity, someone I recognize from somewhere, but who is himself unknown and unknowable.

I scurry to my nǎinai’s side nervously. I’m sure my

father was a little disappointed, but he respected my space, taking only a small step toward me.

“Do you know who I am?”

I ponder this for a moment.

“You . . . you are Zhenning Liu.”⁵

Everyone around me bursts out laughing. The ice is broken, and I laugh along, even though I don’t get the joke. “Zhenning Liu” is exactly who this man is to me; not “Dad,” not “Father,” not “Bàba” . . . but a stranger, an acquaintance at best.

Slowly, over the next few days, it dawns on me that this stranger is going to take me away from my family, my home and everything that I have ever known.

¹ grandfather, grandmother, aunt, uncle² Hexing Street³ Father⁴ Chinese nickname for a small child⁵ the father’s full name

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 3

Suggested time—40 minutes

(This question counts as one-third of the total essay section score.)

In a 2019 interview, award-winning poet and memoirist Jimmy Santiago Baca asserted: “In America we value possessions. We would much rather talk about a new car than talk about a story that happened between grandfather and me. We’d much rather get on the computer and play video games and enact some cataclysmic¹ epic² than to talk about the epics in our own lives.”

Write an essay that argues your position on the extent to which Baca’s claim about the value of possessions is valid.

¹ destructive on a large scale

² a narrative or story of grand proportions

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Provide evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

STOP

END OF EXAM