

Morning Reading

Grade 11 · AS · Week 6

Read each word aloud, then copy the English word three times.

Reading

Read the passage aloud twice.

A skydiver steps out of the plane. At first she accelerates: gravity wins. But as she speeds up, air resistance grows, until it exactly balances her weight. From then on she falls at a steady **terminal velocity**. Opening the parachute increases the air resistance enormously, so she slows to a new, safe terminal velocity. When she lands softly, bending her knees, she is using **deformation** to extend the stopping time and reduce the force.

Computers make a similar trade between speed and safety. **RAM** is fast but **volatile**: switch off the power and everything in it is gone. **ROM** is **non-volatile**, keeping its contents forever, so the start-up program lives there. The **cache** keeps the busiest data closest to the processor.

Why does the third slice of pizza taste worse than the first? Economists say the extra satisfaction from each unit, the **marginal utility**, falls as you consume more. This law of **diminishing marginal utility** helps explain why the **demand curve** slopes downwards.

Talk about it :

1. Why does a parachute have to be large? Explain using forces.
2. Give your own example of diminishing marginal utility from this week.

Physics

Topics 3–4 · Dynamics, Forces, density and pressure

inelastic collision

/ɪnˈlæstɪk kəˈlɪʒn/

deformation

/ˌdiːfɔːˈmeɪʃn/

head-on

/hed ɒn/

stationary

/ˈsteɪʃənəri/

mass-flow rate

/mæs fləʊ reɪt/

centre of gravity

/ˈsentə ɒv ˈɡrævɪti/

centre of mass

/ˈsentə ɒv mæs/

free-body diagram

/friː ˈbɒdi ˈdaɪəɡræm/

moment

/ˈməʊmənt/

perpendicular distance

/ˌpɜːpənˈdɪkjələ ˈdɪstəns/

line of action

/laɪn ɒv ˈækʃn/

lever arm

/ˈliːvə ɑːm/

pivot

/ˈpɪvət/

clockwise

/ˈklɒkwaɪz/

 anticlockwise			
<i>/æntɪˈklokwaɪz/</i>			
 couple			
<i>/'kʌpl/</i>			
 torque			
<i>/tɔːk/</i>			
 translation			
<i>/trænˈsleɪʃn/</i>			
 equilibrium			
<i>/iːkwɪˈlɪbrɪəm/</i>			
 angular acceleration			
<i>/'æŋɡjələ ækˌsələ'reɪʃn/</i>			

Chemistry

Topic 3 · Chemical bonding

 VSEPR theory			
<i>/'vespə 'θɪəri/</i>			
 lone pair			
<i>/ləʊn peə/</i>			
 bonding pair			
<i>/'bɒndɪŋ peə/</i>			
 bond angle			
<i>/bɒnd 'æŋɡl/</i>			
 linear			
<i>/'liːnə/</i>			
 trigonal planar			
<i>/'trɪɡənl 'pleɪnə/</i>			
 tetrahedral			
<i>/'tetrə'hɪːdrəl/</i>			
 pyramidal			
<i>/pɪ'ræmɪdl/</i>			

 bent			
<i>/bent/</i>			
 trigonal bipyramidal			
<i>/'trɪɡənl baɪ'pɪrəmɪdl/</i>			
 octahedral			
<i>/'ɒktə'hɪːdrəl/</i>			
 intermolecular forces			
<i>/'ɪntəməˈlekjələ 'fɔːsɪz/</i>			
 polarity			
<i>/pəʊˈlærɪti/</i>			
 dipole			
<i>/'daɪpəʊl/</i>			

 dipole moment			
<i>/'daɪpəʊl 'məʊmənt/</i>			
 van der Waals' forces			
<i>/'vændsː wɑːlz 'fɔːsɪz/</i>			
 London dispersion forces			
<i>/'lʌndn dɪ'spɜːʃn 'fɔːsɪz/</i>			
 instantaneous dipole			
<i>/'ɪnstən'teɪniəs 'daɪpəʊl/</i>			

Biology

Topic 2 · Biological molecules

 hydrophilic			
<i>/'haɪdrə'fɪlɪk/</i>			
 polar			
<i>/'pəʊlə/</i>			
 amino group			
<i>/ə'mɪːnəʊ gruːp/</i>			

 carboxyl group <i>/ˈkɑːbɒksɪl gruːp/</i>			
 side chain <i>/saɪd tʃeɪn/</i>			
 peptide bond <i>/ˈpeptaid bɒnd/</i>			
 polypeptide <i>/ˌpɒlɪˈpeptaid/</i>			
primary structure <i>/ˈpraɪməri ˈstrʌktʃə/</i>			
 secondary structure <i>/ˈsekəndəri ˈstrʌktʃə/</i>			
 helix <i>/ˈhiːlɪks/</i>			
 pleated sheet <i>/ˈpliːtɪd ʃiːt/</i>			
 tertiary structure <i>/ˈtɜːʃjəri ˈstrʌktʃə/</i>			
 quaternary structure <i>/kwəˈtɜːnəri ˈstrʌktʃə/</i>			
 hydrophobic interactions <i>/ˌhaɪdrəˈfəʊbɪk ˌɪntəˈrækʃnz/</i>			
 ionic bond <i>/aɪˈɒnɪk bɒnd/</i>			
 disulfide bond <i>/ˈdaɪsʌlfʔaɪd bɒnd/</i>			
 globular protein <i>/ˈɡləʊbjʊlə ˈprəʊtɪn/</i>			
 soluble <i>/ˈsɒljʊːbl/</i>			

 fibrous protein <i>/ˈfɪbrəs ˈprəʊtɪn/</i>			
 haemoglobin <i>/ˌhiːməˈɡləʊbɪn/</i>			
 oxygen <i>/ˈɒksɪdʒn/</i>			
 haem group <i>/hiːm gruːp/</i>			
 iron <i>/ˈaɪən/</i>			

Mathematics

Topic 1 · Pure Mathematics 1

+ arithmetic progression <i>/əˈrɪθmətɪk prəˈɡresn/</i>			
− common difference <i>/ˈkɒmən ˈdɪfrəns/</i>			
 term <i>/tɜːm/</i>			
× geometric progression <i>/ˌdʒiːəʊˈmetrɪk prəˈɡresn/</i>			
÷ common ratio <i>/ˈkɒmən ˈreɪʃjəʊ/</i>			
 converges <i>/kənˈvɜːdʒɪz/</i>			
∞ sum to infinity <i>/sʌm tə ɪnˈfɪnɪti/</i>			
 Differentiation <i>/ˌdɪfəˈrenʃiˈeɪʃn/</i>			
 gradient of a curve <i>/ˈɡreɪdɪənt əvə kɜːv/</i>			

→| limit

/ˈlɪmɪt/

Further Mathematics

Topic 1 · Further Pure Mathematics 1

∞ mathematical induction

/ˌmæθɪˈmætɪkl ɪnˈdʌkʃn/

💡 conjecture

/kənˈdʒektʃə/

✓ inductive proof

/ɪnˈdʌktɪv pruːf/

[:] symmetric functions

/sɪˈmetrɪk ˈfʌŋkʃnz/

√ discriminant

/dɪˈskrɪmɪnənt/

Computer Science

Topics 3–4 · Hardware, Processor Fundamentals

💾 stored program

/stɔːd ˈprəʊgræm/

🧮 arithmetic and logic unit

/æɪrɪθˈmetɪk ənd ˈlɒdʒɪk ˈjuːnɪt/

⚙️ control unit

/kənˈtrəʊl ˈjuːnɪt/

🕒 clock speed

/klɒk spiːd/

⏸️ Program Counter

/ˈprəʊgræm ˈkaʊntə/

📍 Memory Address Register

/ˈmeməri əˈdres ˈredʒɪstə/

🗄️ Memory Data Register

/ˈmeməri ˈdeɪtə ˈredʒɪstə/

⚙️ Current Instruction Register

/ˈkʌrənt ɪnˈstrʌkʃn ˈredʒɪstə/

+ accumulator

/əˈkjuːmjəleɪtə/

🚩 Status Register

/ˈsteɪtəs ˈredʒɪstə/

🚩 flags

/flægz/

Index Register

/ˈɪndeks ˈredʒɪstə/

🗄️ general-purpose registers

/ˈdʒenərəl ˈpɜːpəs ˈredʒɪstəz/

📶 address bus

/əˈdres bʌs/

📶 data bus

/ˈdeɪtə bʌs/

📶 control bus

/kənˈtrəʊl bʌs/

🏠 cores

/kɔːz/

📏 word size

/wɜːd saɪz/

📄 page

/peɪdʒ/

🔌 port

/pɔːt/

🕒 peripheral

/pəˈrɪfərəl/

 **fetch-execute cycle**

-
/fetʃ'eksɪkjʊt 'saɪkl/

 **interrupt**

/ɪntəʁʌpt/

 **interrupt service routine**

/ɪntəʁʌpt 'sɜ:vɪs ru:'ti:n/

 **machine code**

/mə'ʃi:n kəʊd/

 **assembly language**

/ə'sembli 'læŋgwɪdʒ/

 **mnemonics**

/ni'məniks/

Economics

Topic 2 · The price system and the microeconomy

 **income**

/ɪŋkʌm/

 **substitute**

/'sʌbstɪtʃʊt/

 **complement**

/'kɒmplɪmənt/

 **market demand**

/'mɑ:kɪt dɪ'mænd/

 **utility**

/ju:'tɪlɪti/

 **marginal utility**

/'mɑ:dʒɪnl ju:'tɪlɪti/

 **diminishing marginal utility**

/dɪ'mɪnɪʃɪŋ 'mɑ:dʒɪnl ju:'tɪlɪti/

 **supply**

/sə'plaɪ/

 **quantity supplied**

/kwɒntəti sə'plaɪd/

 **supply curve**

/sə'plaɪ kɜ:v/

 **costs of production**

/kɒsts ɒv prə'dʌkʃn/

 **subsidy**

/'sʌbsɪdi/

 **market supply**

/'mɑ:kɪt sə'plaɪ/

 **price elasticity of demand**

/praɪs ɪlə'stɪsɪti ɒv dɪ'mænd/

 **elastic**

/ɪ'læstɪk/

 **inelastic**

/ɪn'læstɪk/