

Revision Sheet 复习练习卷

A-Level Physics · Unit 2 Kinematics

7 vocabulary items · 14 marks of exam questions (14 questions)

Part 1 · Vocabulary review answer key. Section A wants the exact English spelling.

Question	Answer	Marks
1	distance	1
2	uniform acceleration	1
3	air resistance	1
4	reaction-time	1
5	acceleration of free fall	1
6	graphical methods	1
7	uniform gravitational field	1

Multiple Choice Answers

Q8: D

Q9: A

Multiple Choice Answers

Q10: A

Q11: B

Question 12 (Answer: **C**)

- With no air resistance there is no horizontal force, so the horizontal component of velocity stays constant.
- The only force is the weight, which always acts downwards, so the vertical acceleration is constant: g downwards, on the way up and on the way down.
- A and B wrongly slow the ball down horizontally, and B and D wrongly let the vertical acceleration change.

Question 13 (Answer: **B**)

- In the vacuum the feather falls from rest with constant acceleration, so $s = \frac{1}{2}gt^2$ and the distance is proportional to t^2 .
- Halving the time multiplies the distance by $0.50^2 = 0.25$, so the feather has fallen $0.25L$.
- D would be true only at constant speed. The feather starts slowly, so it covers only a quarter of the tube in the first half of the time.

Multiple Choice Answers

Q14: B

Question 15 (Answer: **A**)

- Horizontally there is no acceleration, so the range is the horizontal component of velocity multiplied by the time: $R = (V \cos \theta)T$.
- $V \sin \theta$ is the vertical component, so B uses the wrong component.
- The $\frac{1}{2}gT^2$ term belongs to the vertical motion only, so C and D are wrong.

Question 16 (Answer: **B**)*(Explanation not available.)***Multiple Choice Answers**

Q17: C

Question 18 (Answer: **A**)

- The maximum height is the area under each graph above the time axis, from launch until $v = 0$.
- Earth: v reaches zero at about 1.2 s, so the height is $\frac{1}{2} \times 12 \times 1.2 = 7.2$ m. Mars: about 3.2 s, so $\frac{1}{2} \times 12 \times 3.2 = 19$ m.
- The difference is $19 - 7.2 = 12$ m. C is the height on Mars alone, not the difference.

Multiple Choice Answers

Q19: D

Multiple Choice Answers

Q20: D

Multiple Choice Answers

Q21: B