

Brett Robbins Academic Consulting

# Physics 20 Practice Test

## Unit A: Kinematics

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

**This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.**

Question 1

Which of the following quantities is a vector?

- |                 |          |
|-----------------|----------|
| A) Distance     | B) Speed |
| C) Displacement | D) Time  |

Question 2

A car travels 240 m in 12 s at a constant speed.

The speed of the car is

- |              |             |
|--------------|-------------|
| A) 0.050 m/s | B) 20 m/s   |
| C) 2.0 m/s   | D) 2880 m/s |

Question 3

An object moves 45 m [E] in 9.0 s at a constant velocity.

Its velocity, in metres per second, is

Question 4

A car moving east slows down from 20 m/s to 8 m/s in 3.0 s.

Taking east as positive, the acceleration of the car is

- |                            |                             |
|----------------------------|-----------------------------|
| A) $4.0 \text{ m/s}^2$ [W] | B) $4.0 \text{ m/s}^2$ [E]  |
| C) $9.3 \text{ m/s}^2$ [W] | D) $0.25 \text{ m/s}^2$ [W] |

Question 5

On a position–time graph of an object moving in a straight line,  
the slope of the graph represents the objects

- |                 |                 |
|-----------------|-----------------|
| A) Displacement | B) Acceleration |
| C) Speed        | D) Velocity     |

Question 6

A velocity–time graph shows an objects velocity increasing uniformly  
from 0 to 12 m/s over the first 6.0 s of its motion.

The displacement of the object during these 6.0 s is

- |          |         |
|----------|---------|
| A) 2.0 m | B) 72 m |
| C) 36 m  | D) 18 m |

Question 7

A car starts from rest and accelerates uniformly at  $3.5 \text{ m/s}^2$  for 6.0 s.

The distance travelled, in metres, to the nearest metre, is

Question 8

An object is dropped from rest from a tall building. Use  $g = 9.81 \text{ m/s}^2$   
and ignore air resistance. The speed of the object after 3.0 s is

- |           |            |
|-----------|------------|
| A) 29 m/s | B) 3.3 m/s |
| C) 44 m/s | D) 88 m/s  |

Question 9

A hiker walks 5.0 km east, then turns and walks 12 km north.

The magnitude of the hikers total displacement is

- |           |          |
|-----------|----------|
| A) 7.0 km | B) 13 km |
| C) 17 km  | D) 60 km |

Question 10

A train moving at 12 m/s accelerates uniformly at  $0.80 \text{ m/s}^2$   
over a distance of 200 m. Its final speed, in metres per second,  
to the nearest tenth, is

# Answer Key

- |        |       |          |
|--------|-------|----------|
| 1. C   | 5. D  | 9. B     |
| 2. B   | 6. C  | 10. 21.5 |
| 3. 5.0 | 7. 63 |          |
| 4. A   | 8. A  |          |

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