Quiz 2

1) The ball rolls up the ramp, then back down.

Which is the correct acceleration graph, if the axis up (along) the slope is positive?

A) ![Graph A]
B) ![Graph B]
C) ![Graph C]
D) ![Graph D]
E) ![Graph E]

Answer: ________

Rationale:

2) A motion diagram for a moving object is shown.

Which of the following $v_x$-$t$ graphs best matches the motion?

A) ![Graph A]
B) ![Graph B]
C) ![Graph C]
D) ![Graph D]

Answer: ________

Rationale:
A physics student on Planet Meepzorp throws a ball that follows the parabolic trajectory shown. The ball's position is shown at 1 second intervals.

At t=1 s, the ball's velocity is \(\mathbf{v} = (2i + 2j) \text{ m/s}\).

What is the magnitude of the acceleration due to gravity on Planet Meepzorp (in m/s\(^2\))? 

A) 9.8 
B) 2 
C) 4 
D) \(\sqrt{8}\) 
E) Not enough information.

Answer: ________

Rationale:

A battle ship simultaneously fires two shells with the same initial speed at enemy ships. The shells follow the parabolic trajectories shown.

Which ship gets hit first?

A) A 
B) B 
C) Both are hit simultaneously 
D) Not enough info is given 

Answer: ________

Rationale:
A physics student on Planet Meeprorp throws a ball that follows the parabolic trajectory shown. The ball's position is shown at 1 second intervals.

At t=1 s, the ball's velocity is v= (3 + 2j). m/s.

What is the magnitude of the acceleration due to gravity on Planet Meeprorp in m/s²?

A) 9.8
B) 2
C) 4
D) Sinθ
E) Not enough information.

A motion diagram for a moving object is shown.

Which of the following v-x graphs best matches the motion?

A) v
B) v
C) v
D) v
E) v

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Which ship gets hit first?

A) A
B) B
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