AP Physics 1 Multiple Choice Questions - Chapter 3

1 Resolve a speed vector of 25 m/s @ 55° above the horizontal into x and y components.

a 8.25***i*** **+ 7.55***j*

b 7.55***i*** *+ 8.25* **j**

c 14.33***i*** + 20.48***j***

d 20.48***i*** + 14.33***j***

e None of the above

3.1

2 Resolve a momentum vector of 35 kg m/s @ 35° above the horizontal into x and y components

a 28.67***i*** + 20.08***j***

b -31.62***i*** - 14.99***j***

c 28.67***i*** - 20.08***j***

d -31.62***i*** + 14.99***j***

3.1

3 Convert the following acceleration vector of 5.25***i*** - 7.21***j*** m/s^2 into magnitude and direction.

a 4.94 m/s^2 at 54° below the +x axis

b 8.92 m/s^2 at 54° below the +x axis

c 4.94 m/s^2 at 54° above the +x axis

d 8.92 m/s^2 at 54° above the +x axis

3.1

AP Physics 1 Multiple Choice Questions - Chapter 3

1 Add the following vectors: 30 m/s @ 30 degrees above the horizontal and 24 m/s @ 40 degrees below the horizontal (320 degrees)

a 5.98***i*** - 0.43***j***
b 46.76***i*** - 0.43***j***
c 5.98***i*** + 30.43***j***
d 46.76***i*** + 30.43***j***
e None of the above

3.2

2 Subtract the following force vectors: 45 N @ 25° above the horizontal minus 25 N @ 15° below the horizontal (345°)

a 23.62***i*** + 7.64***j***
b 65.58***i*** - 19.56***j***
c 64.93***i*** + 12.55***j***
d 16.63***i*** + 25.49***j***

3.2

3 Multiply the following acceleration vector by 5 kg to find the force vector: 5 m/s^2 at 25° above the +x axis

a 22.7***i*** + 10.6***j***
b 10.6***i*** + 22.7***j***
c 25***i*** **+** 25***j***
d 24.8***i*** - 3.3***j***

3.2

AP Physics 1 Multiple Choice Questions - Chapter 3

1 Determine the type of projectile problem described below: | 3.3
A golfer strikes a ball from a level fairway at an angle of 35° above the horizontal.

a Type I
b Type II
c Type III

2 Determine the type of projectile problem described below: | 3.3
A ball rolls off of a table 5.5 meters high.

a Type I
b Type II
c Type III

3 Determine the type of projectile problem described below: | 3.3
A cannon aimed at 15° above the horizontal fires a ball from a height of 15 m.

a Type I
b Type II
c Type III

AP Physics 1 Multiple Choice Questions - Chapter 3

1 A ball rolls off of a level table 6.5 meters above ground level at an initial velocity of 5 m/s. How far away from the base of the table does the ball strike the ground?

a 5.75 m
b 11.5 m
c 3.33 m
d 8.72 m
e 1.15 m

3.4

2 A ball rolls off of a level table 13.5 meters above ground level at an initial velocity of 8.5 m/s. How far from the base of the table does the ball strike the ground?

a 8.5 m
b 14.1 m
c 17.5 m
d 23.2 m

3.4

3 A ball rolls off of a roof at a height of 25.5 meters above ground level and strikes the ground 31 m from the base of the building. What was the initial velocity of the ball?

a 31.5 m/s
b 15.2 m/s
c 9.2 m/s
d 13.6 m/s

3.4

AP Physics 1 Multiple Choice Questions - Chapter 3

1 A golf ball is struck from a level fairway with an initial velocity of 55 m/s at an angle of 35° above the horizontal. How far does the shot travel?

a 195 m
b 145 m
c 290 m
d 415 m
e 118 m

3.5

2 A golf ball is struck from a level fairway with an initial velocity of 60 m/s at an angle of 40° above the horizontal. What is the maximum height of the golf ball?

a 28.5 m
b 37.8 m
c 62.1 m
d 75.9 m

3.5

3 A football is kicked from a level ground and it reaches a height of 25 m and goes a horizontal distance of 48 m. How long is the football airborne?

a 5.22 sec
b 4.52 sec
c 3.25 sec
d 2.26 sec

3.5

AP Physics 1 Multiple Choice Questions - Chapter 3

1 A ball is launched off of the roof of a house 35 m above ground level at an angle of 15 degrees above the horizontal with an initial velocity of 35 m/s. How far does the projectile travel?

a 101.8 m
b 88.2 m
c 61.5 m
d 127 m
e 72.8 m

3.6

2 An athlete launches a shotput at an initial height of 1.2 m with an initial velocity of 8 m/s at an angle of 35° above the horizontal. What is the horizontal range of the shotput?

a 2.55 m
b 7.53 m
c 9.20 m
d 5.28 m

3.6

3 A golf ball is struck at an angle of 35° with an initial velocity of 45 m/s at an initial height of 10. m. How long is the golf ball in the air?

a 5.63 sec
b 6.82 sec
c 5.11 sec
d 4.85 sec

3.6

AP Physics 1 Multiple Choice Questions - Chapter 3

1 A ball is launched off of the roof of a house 35 m above ground level at an angle of 15 degrees above the horizontal with an initial velocity of 35 m/s. How long does it take for the projectile to reach the ground in seconds?

3.7

a 3.75 sec
b 1.25 sec
c 6.82 sec
d 1.52 sec
e 2.55 sec

2 An athlete launches a shotput at an initial height of 1.2 m with an initial velocity of 8 m/s at an angle of 35° above the horizontal. How long does it take for the shotput to strike the ground?

3.7

a 1.15 sec
b 0.78 sec
c 2.30 sec
d 1.95 sec

3 A ball rolls off of a table 35 cm above the ground with an initial velocity of 15 m/s. How far away from the base of the table does the ball strike the ground?

3.7

a 6.5 m
b 2.5 m
c 0.75 m
d 4.0 m