

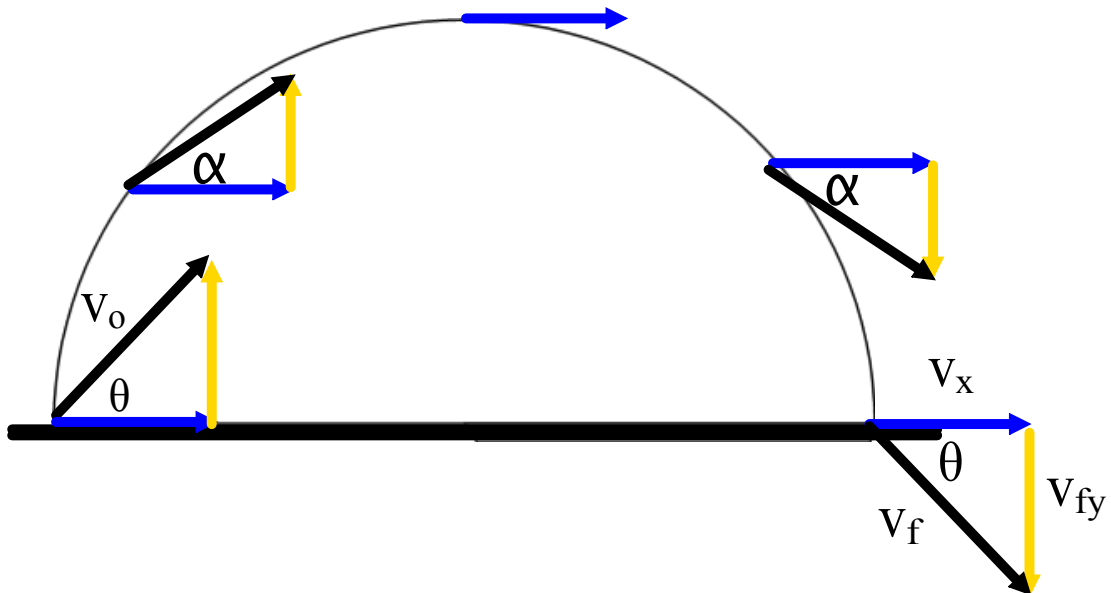
Projectiles Fired At An Angle

Read MHR: Pg 537 and the first Model Problem on page 539)

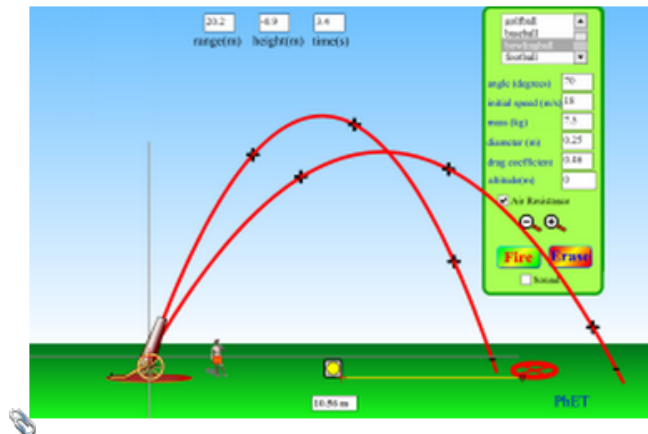
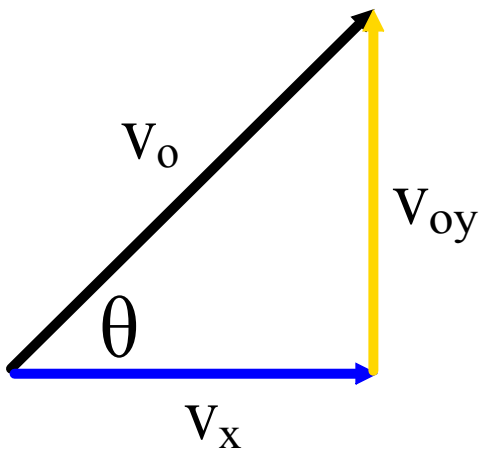
horizontal velocity: **constant**

vertical velocity: **changes**

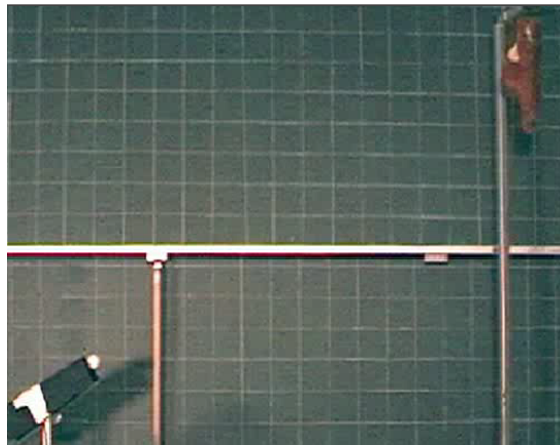
Trajectory



Projectile Motion



The Monkey and the Hunter



Projectile Motion Concept Review

Grade: 12

Subject: Physics 122

Date: 2014

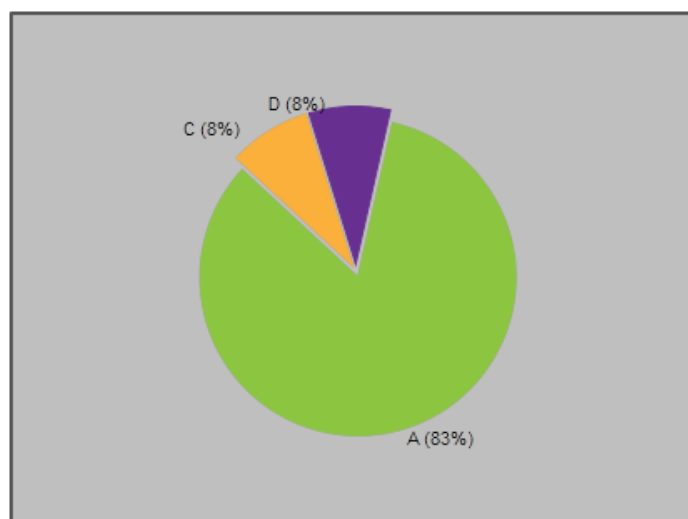
1 A ball rolls off the table traveling 10 m/s. What is the ball's initial velocity in the y-direction?

A 0 m/s

B 10 m/s

C -9.81 m/s

D -10 m/s



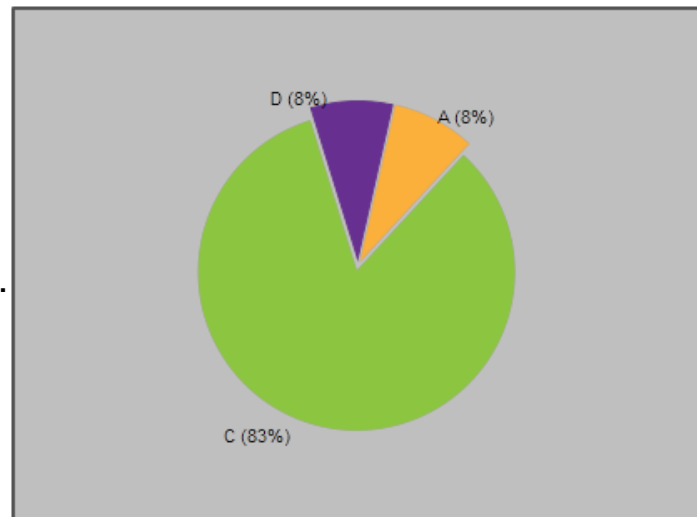
2 A rock is thrown horizontally with a velocity of 50 m/s. Another is dropped from the same height the instant the first was thrown. How does the fall-time compare between the two rocks?

A Dropped rock hits first.

B Thrown rock hits first.

C Both hit at the same time.

D Depends on their mass.



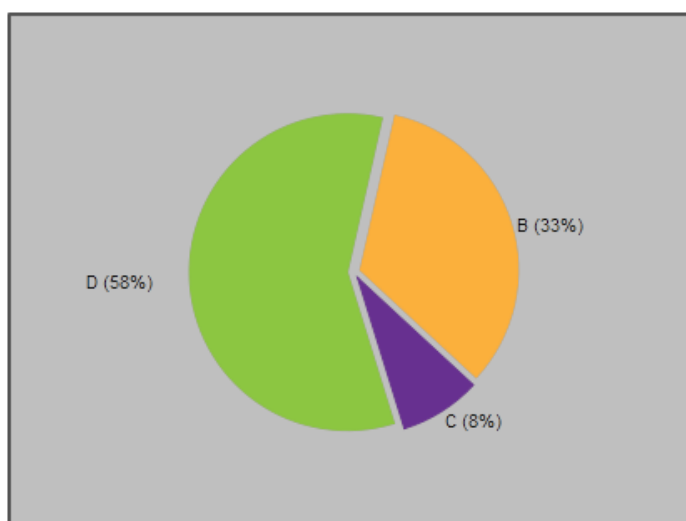
3 A projectile is launched at 42 m/s @ 30 degrees up. What is the acceleration in the x-direction?

A 21 m/s²

B 36 m/s²

C -9.81 m/s²

D 0 m/s²



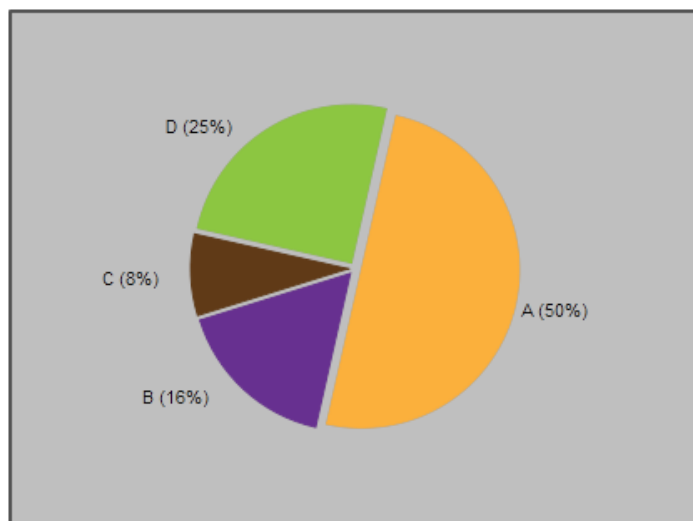
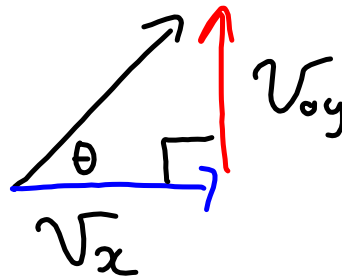
4 A rocket is launched at 300 m/s @ 60 degrees up. Calculate the horizontal velocity 5.5 seconds after launch.

A 300 m/s

B 260 m/s

C 206 m/s

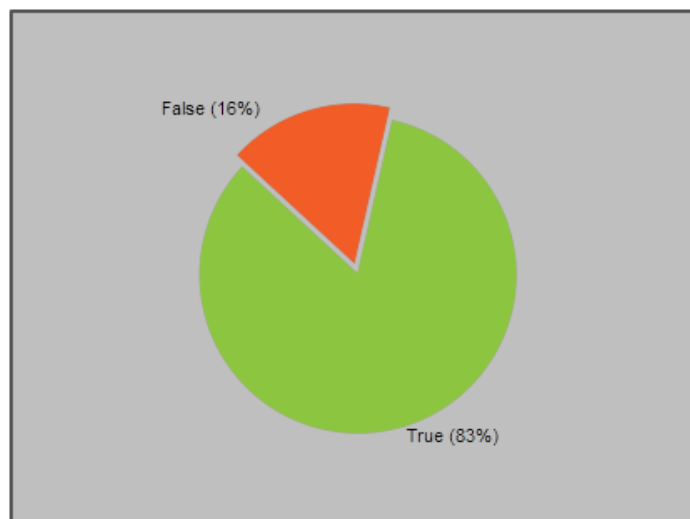
D 150 m/s



5 The y-component of a projectile's velocity is always zero at maximum height.

True

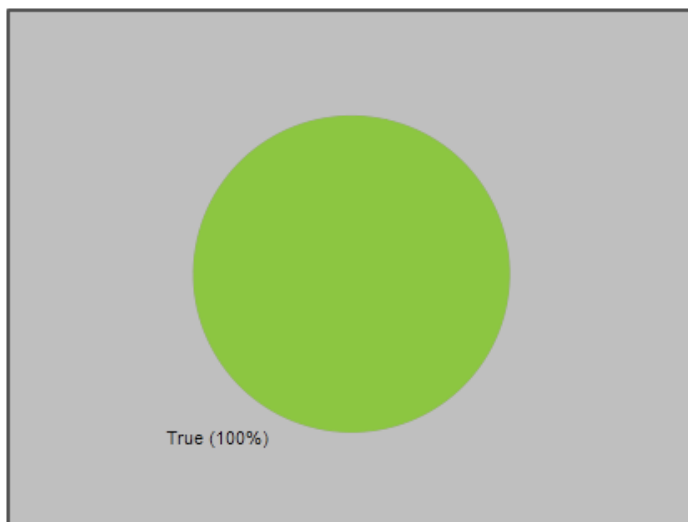
False



6 A projectile can be at the same height at two different times.

True

False



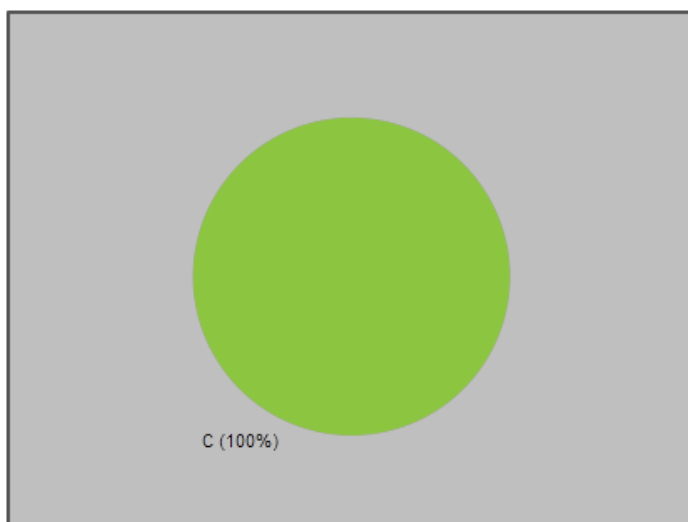
7 A projectile launched at 30 degrees will land at the same spot as a projectile launched at _____ degrees. (assume identical launch speeds)

A 10

B 40

C 60

D 80



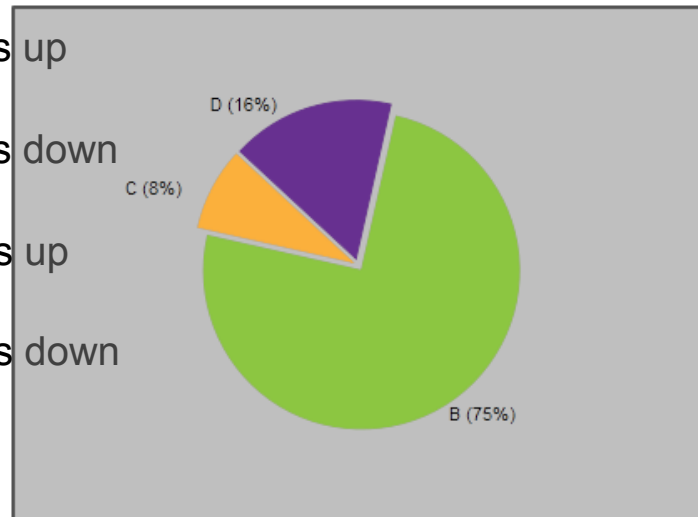
8 A baseball leaves your hand at 24 m/s 60 degrees up. With what velocity does your friend catch it (assume it is caught at the same height above the ground).

A 24 m/s 60 degrees up

B 24 m/s 60 degrees down

C 24 m/s 30 degrees up

D 24 m/s 30 degrees down



∴ An arrow is shot at an angle of 30.0° with the ground. It has a speed of 49 m/s. ~~Assuming the arrow is shot from ground level and it lands on the ground, answer the following questions.~~

- a) How high will the arrow go? (31 m)
 b) Assuming the arrow lands on the ground, what is its range?
 (2.1×10^2 m)

$$a) d_{fy} = ?$$

$$g = -9.81 \text{ m/s}^2$$

$$d_0 = 0 \text{ m}$$

$$v_{oy} = 49 \sin 30$$

$$v_f = 0 \text{ m/s}$$

$$49 \sin 30$$

$$\downarrow$$

$$v_{oy} = 24.5 \text{ m/s}$$

$$v_f^2 = v_0^2 + 2g(d_f - d_0)$$

$$0 = (24.5)^2 + 2(-9.81)(d_f - 0)$$

$$0 = 600.25 - 19.62d_f$$

$$\frac{-600.25}{-19.62} = d_f$$

$$31 \text{ m} = d_{fy}$$

Pg 19 of
 Prob. Set
 # 5, 6

Attachments

projectile-motion_en.jar