

Physics
FA 3.3 - Arc Problems

Name _____

Show your work and circle your answers to receive full credit (but don't round until the end) Ignore air friction, use the convention that down is negative, and use $g = 9.80 \text{ m/s}^2$.

When you have finished this, go to the website and check your answers. If you got a problem wrong, cross it off on the front, and do it correctly on the back.

1-3: A ball is launched at 27.2 m/s at an angle of 75.0° above horizontal on a level field.

1. What time is the ball in the air?

2. What horizontal distance does it travel before hitting the ground again?

3. What is the greatest height the ball reaches? What is its speed at this height?

4. Use the range equation to find these ranges for the velocities and launch angles:

Velocity = 34.0 m/s, Launch Angle = 43.0° Range = _____

Velocity = 15.0 m/s, Launch Angle = 17.0° Range = _____

5. Use the range equation to find the proper launch angles for the following velocities and ranges:

Velocity = 34.0 m/s, Range = 100. m, Launch Angles = _____ and _____ degrees

Velocity = 12.0 m/s, Range = 5.00 m, Launch Angles = _____ and _____ degrees