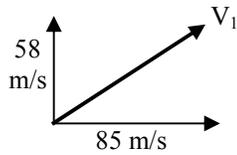


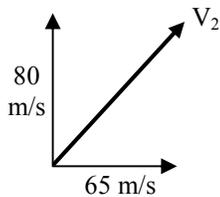
PreAP Two Dimensions 15

1. The arrows below show the initial V_x and V_y for projectile 1. (*They have already been broken up into components*)



- A. * Working backwards, calculate the initial velocity and direction. (*You have V_x and V_y , find V , the hypotenuse. Round V to no decimals.*)
- B. * If it is launched ground to ground, how long will it take to hit the ground? (*Can't you just use the V_y you were given?*)
- C. * How far away does it land?
- D. * How high does it go?

2. A second projectile is launched as shown below. (*Do most of this one on your own.*)



- A. * Working backwards, calculate the initial velocity and direction. (*Again, round V to no decimals.*)
- B. If it is launched ground to ground, how long will it take to hit the ground?
- C. How far away does it land?
- D. How high does it go?

You should now know that the two projectiles have the same velocity, just different angles. It is like a cannon being shot at one angle and then moved to another angle. We can use this information to learn more about projectiles.

3. Comparing the two. Projectile 1 or 2:

- | | |
|--|--|
| A. Which one had the greatest initial v (rounded to the whole number)? | D. Which one had the greatest initial y -velocity? |
| B. Which one had the greatest initial acceleration? | E. Which one went higher? |
| C. Which one had the greatest x -velocity? | F. Which one was in the air for more time? |
| | G. Which one went further? |

4. Using the comparisons you just did, x or y component (or both):

- A. _____ Determines how high it goes.
 B. _____ Determines how far it goes.
 C. _____ Determines its initial velocity.
 D. _____ Determines the time in the air.

- 1A) 103 m/s at 34.3°
- 1B) 11.84 sec
- 1C) 1006 m
- 2A) 103 m/s at 50.9°