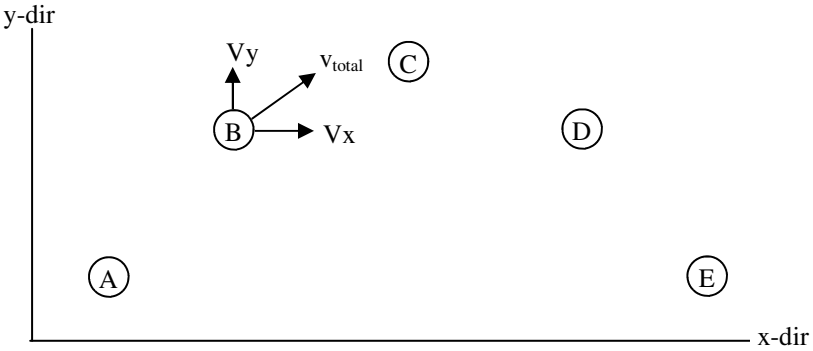
Due Wed., Oct 16

2012 PreAP Two Dimensions 18

1. Scalar or vector?

A.	____Does not need direction.	D.	___ Velocity.	G.	____Number of pennies on a table.
B.	____Needs magnitude and direction.	E.	___ Speed.	H.	____Mass
C.	____Needs amount only.	F.	___ Acceleration.	I.	____Pressure.

2. The graphic at the left shows the path of a projectile shot ground to ground.



A. On the way up, the y-velocities will: increase; decrease; stay the same?

B. On the way down, the y-velocities will:

C. As it goes from A to E, the x-velocities will:

D. Draw the x and y velocities on each letter. Use longer arrows for greater velocity (they don't have to be perfect).

E. Draw the total velocity (the speed) of the projectile at each point. The one at point B is done for you, as an example.

3. Answer the following questions about the projectile positions above. The projectile is launched from the ground to the ground. Its initial velocity is V and its initial angle is θ. Some questions may have more than one answer.

A. Its initial x-velocity is:

B. Its initial y-velocity is:

C. Its total velocity at point C is:

D. Its acceleration at point D is (and give direction):

E. Its x-velocity at D is:

F. Where is its speed the greatest (Vtotal)?

G. Where is its acceleration the smallest?

H. Compared to its horizontal speed at point B, its horizontal speed at D is:

4. What is the shape of a projectile's path?

5. Projectile or not?

A. ____A falling piece of paper?

B. ____A dropped rock?

C. ____A rock that is thrown downward after it is let go?

D. ____A balloon that is thrown?

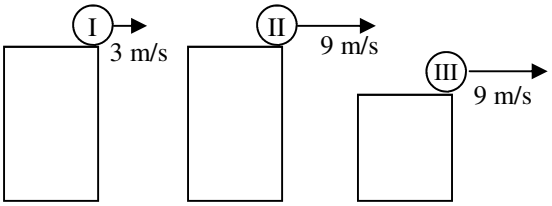
6. Four projectile are launched from the ground with the same initial velocity. Their angles of fire are: 30°; 45°; 60°; 80°.

A. Which one has the most hang time (greatest time in the air)?

B. Which has the greatest Vx?

C. Put them in order from greatest range to least range. If they are the same, say so.

7. Three projectiles are shot horizontally with the given velocities shown below. I and II are shot from the same height.



A. _____ Which is in the air for a greater time: I or II?

B. _____ Which is in the air for less time: II or III?

C. _____ Has the greater range: II or III?

D. _____ Has the greater range: I or II?

E. Give two ways to increase the range of I: