Due Wed., Sept 14

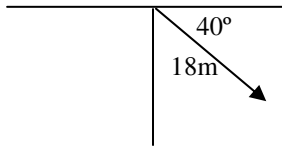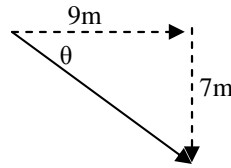# 2011 PreAP Linear Motion 14

1. A. * What direction will you use for the 18m long arrow?
B. * Calculate its x and y components.

40°

18m

2. * Calculate the length and angle of the non-dashed arrow.

9m

θ

7m

3. Zero or non-zero?

A. ___ Vi when an object is dropped.
B. ___ Acceleration when an object is thrown into the air.
C. ___ Acceleration when at constant speed.

D. ___ Vf at the top when an object is thrown into the air.
E. ___ Acceleration at the top of an object's path.
F. ___ Velocity exactly when an object turns around.

4. Which axis is the independent variable?

5. Which axis is the manipulated variable?

6. What is accuracy?

7. What is precision?

8. An object moves 4 m/s for 3 seconds, then accelerates at 1 m/s^2 for 4 seconds. Then the object moves at a constant 8 m/s for 3 seconds. Graph this motion on the graph at the right.

**Velocity vs. Time**

(Velocity (m/s) vs. Time (sec))
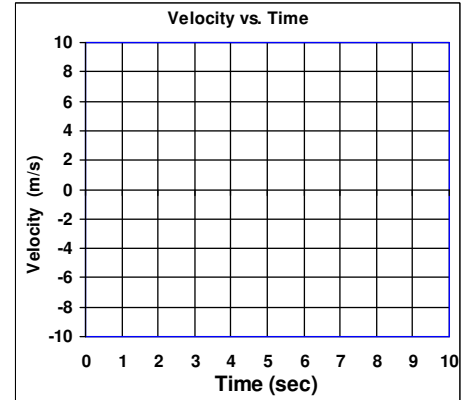
9. * Jar Jar Binks wakes up in one of Jabba the Hut's dungeon cells, since Mr. Hut was unhappy with being pelted by a Gungan. Jar Jar leans against the cell door and finds it open. After a few dazed seconds of surprise he starts running and doesn't see the dungeon pit in the dark. If it takes him 3.5 seconds to scream "Meesa Fallin' Again" before he hits the bottom, how far did he fall?

Velocity vs. Time

(Velocity (m/s) vs. Time (sec))
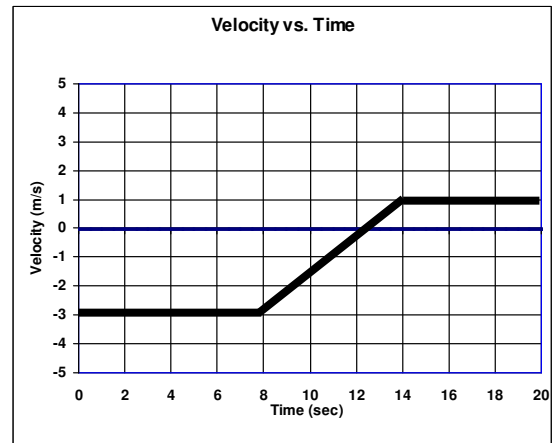
10. * Jar Jar finds an old grappling hook and rope in the pit. He throws it up 18 m/s. How long does it take to come back to his hand?

11. Transfer the velocity vs time graph to position and acceleration graphs. Make sure to label each axis and graph.
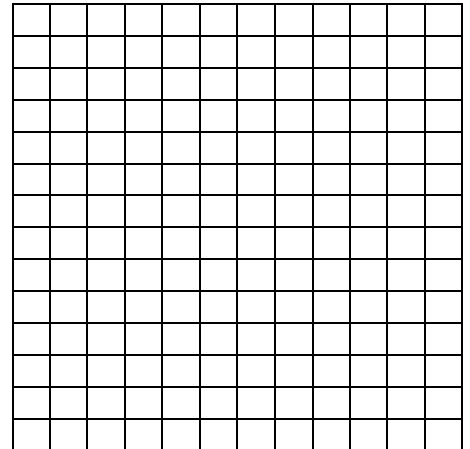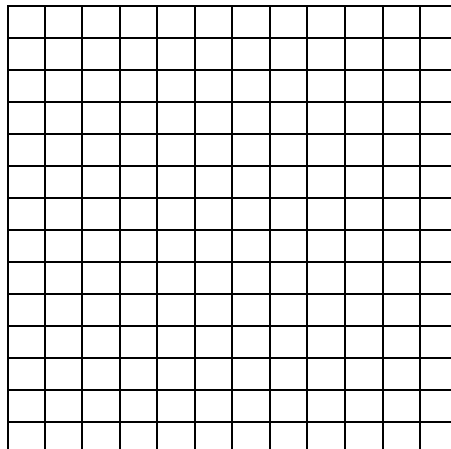
1A) −40° or 320°
1B) y = 18sin(−40°) = −11/6 m
2) θ = −38°
9) 60 m (or −60 m)
10) 3.67 seconds