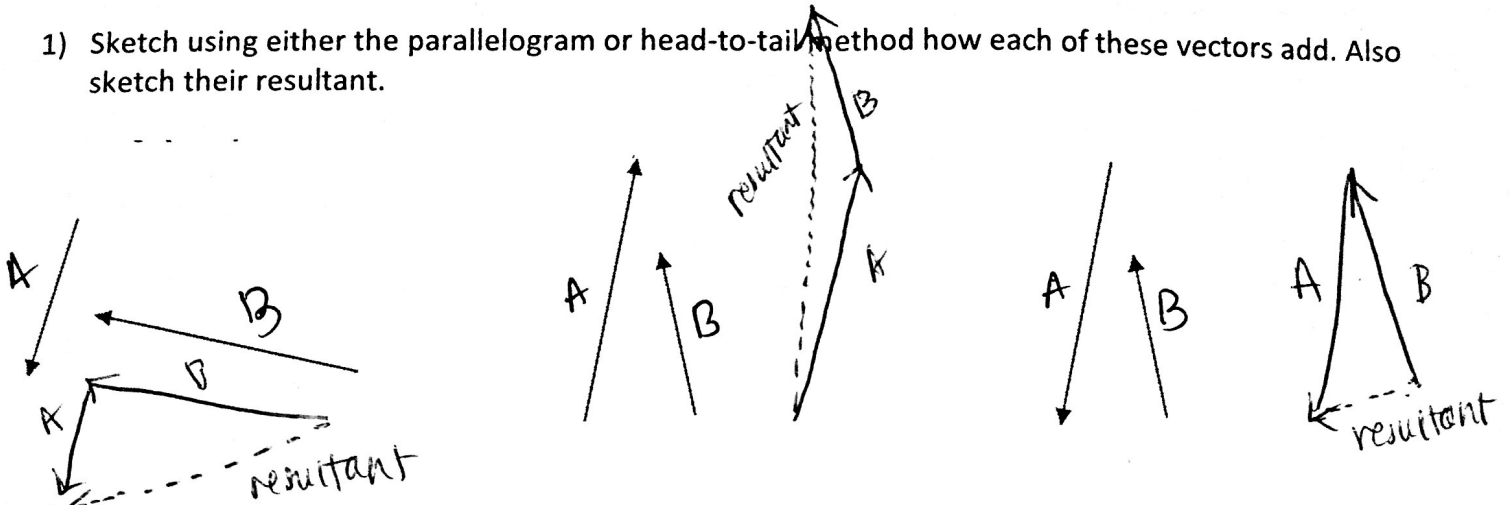


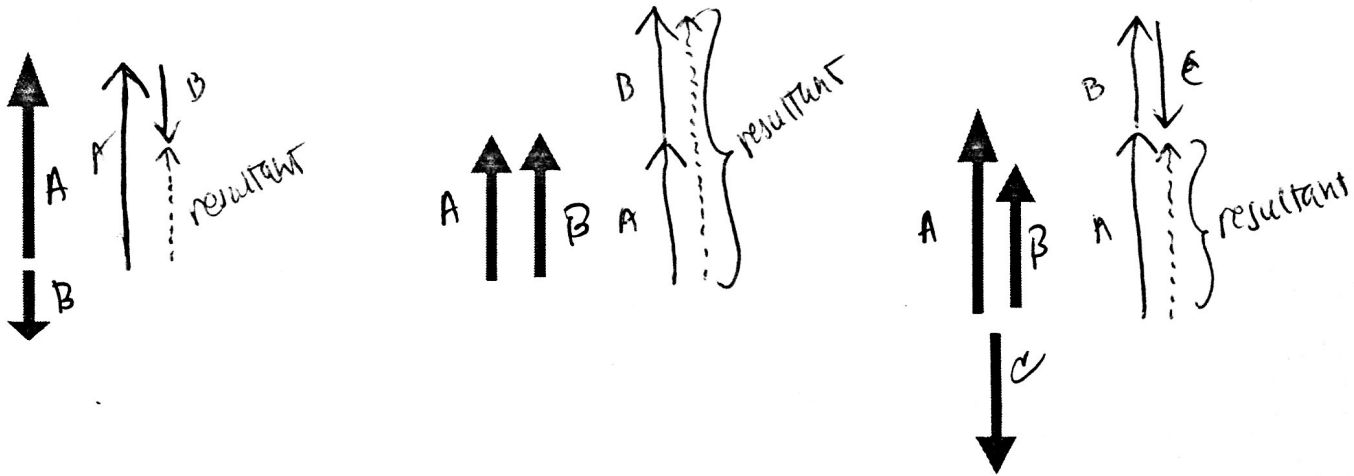
Name Key Period _____ Date _____

Vectors In-Class Activity 8/28-29

1) Sketch using either the parallelogram or head-to-tail method how each of these vectors add. Also sketch their resultant.



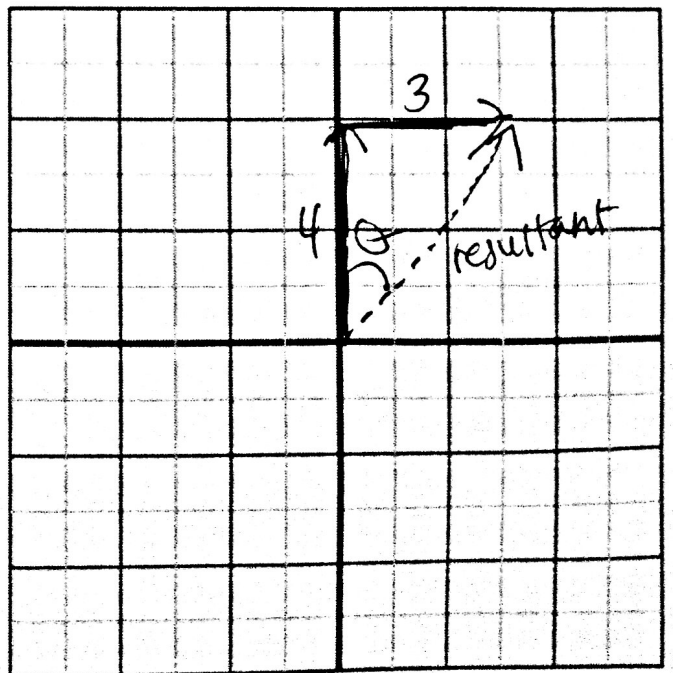
2) Sketch the sum of these vectors.



3) a) Sketch using the graph a position vector, r , for a guinea pig that has the components: $r_x=3, r_y=4$.

b) Calculate the magnitude and angle of her position vector (resultant).

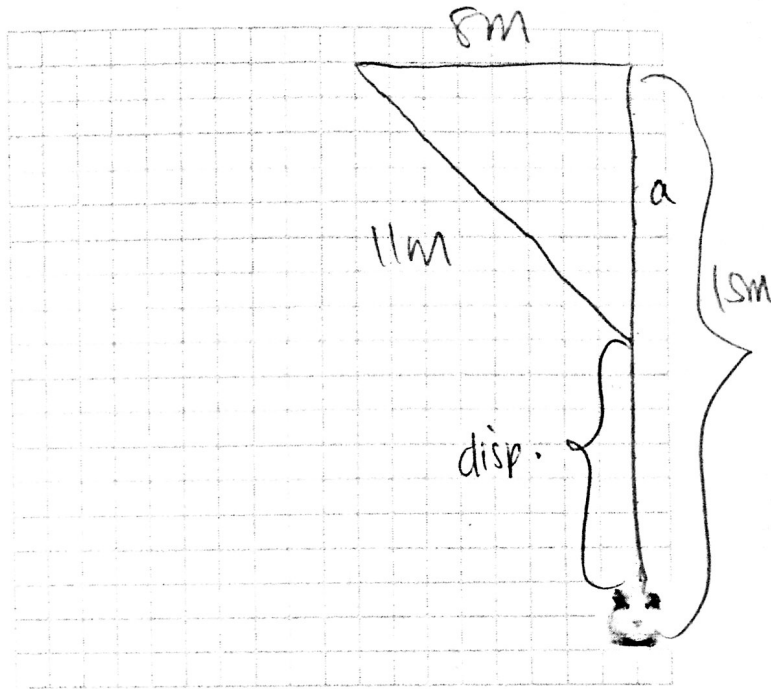
$c = 5m$ $\sqrt{3^2 + 4^2} = c$



Name _____ Period _____ Date _____

4) A guinea pig walks (waddles?) directly north for 15.0 m and stops. She then walks west for a distance of 8.0 m. Next she walks (directly) south-east for a distance of 11.0 m.

a. Show a vector diagram (sketch) on the graph showing each successive displacement of the guinea pig.



b. Calculate the magnitude of the displacement of the guinea pig.

$$a^2 + (8m)^2 = (11m)^2$$

$$a = 7.55m$$

$$\text{displacement} = 15m - 7.55m = \underline{7.45m}$$

c. If the entire trip for the guinea pig took 300 seconds, what was her average velocity?

$$\frac{7.45m}{300sec} = 0.025 \text{ m/s}$$

d. How would the guinea pig's average speed compare to her average velocity? Explain.

$$\text{avg speed} = \frac{\text{total distance}}{\text{time}} = \frac{34m}{300sec} = 0.113m/s$$

avg speed is faster b/c covers more distance in same amt. of time

e. Calculate the magnitude and direction of the displacement vector what would return her to her original position.

7.45 m south