

Name: \_\_\_\_\_  
Class Period: \_\_\_\_\_

**Honors Physics: Mathematical Toolkit**  
**Converting Coordinates and Adding by Components Homework**

Convert the rectangular coordinates given below to polar coordinates

1.  $(6.00, -3.00)$

2.  $(-2.30, 1.40)$

3.  $(-6.80, -24.0)$

Convert the polar coordinates given below to rectangular coordinates

4.  $(2.00, 330^\circ)$

5.  $(3.21, 200^\circ)$

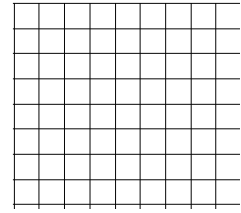
6.  $(9.60, 143^\circ)$

**See back for last questions**

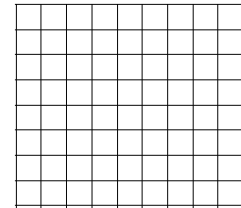
Adding by Components:

7. You are given two vectors:
- Vector A ( $22.0, 60.0^\circ$ )
  - Vector B ( $45.0, 225^\circ$ )
- A. Sketch vector A and Vector B on the graphs to the right.  
B. Draw a sketch of  $A + B$  on the larger graph provided  
C. Calculate the rectangular coordinates for the resultant of  $A + B$ .

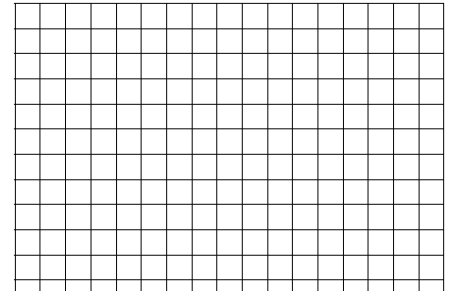
Vector A



Vector B



Vector A + Vector B



8. You are a spy with top-secret information. You think someone might be following you, so you start to vary your movements. You begin by moving 5.00 meters at an angle of  $50.0^\circ$ . You then turn and move 12.0 m at  $180.0^\circ$ . You turn one more time, moving 4.00 m at  $215^\circ$ .
- A. Draw a sketch of your movements on the graph provided.  
B. Calculate the rectangular **AND** polar coordinates of your resulting displacement (the resultant).

