Precalculus
6.1 Practice

Name: _____

**SHORT ANSWER.  Write the word or phrase that best completes each statement or answers the question.**

**Find the component form and magnitude of the indicated vector.**

1)  Given that P = (-4, 5) and Q = (-6, 4), find the component form and magnitude of the vector $\overrightarrow{PQ}$.

2)  Given that P = (4, 0) and Q = (-4, 9), find the component form and magnitude of the vector $\overrightarrow{QP}$.

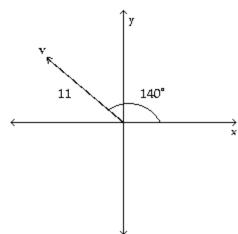**Find the component form of the indicated vector.**

3)  Let **u** = $\langle$-6, 2$\rangle$. Find 4**u**.

4)  Let **u** = $\langle$-7, 4$\rangle$, **v** = $\langle$8, -6$\rangle$. Find -6**u** + 4**v**.

**Find the unit vector in the direction of the given vector. Write your answer in the indicated form.**

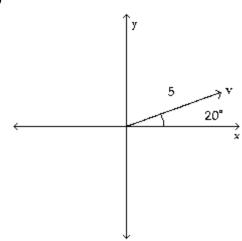5)  Let **u** = $\langle$5, -3$\rangle$. Find the unit vector in the direction of **u**, and write your answer in component form.

6)  Let **u** = $\langle$4, 3$\rangle$. Find the unit vector in the direction of **u**, and write your answer in component form.

**Find the component form of the vector v.**

7)



8)



**Find the magnitude and direction angle for the following vector. Give the direction angle as an angle in [0, 360°) rounded to the nearest tenth.**

9) $\langle 10, -11 \rangle$

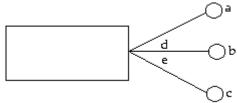**MULTIPLE CHOICE.  Choose the one alternative that best completes the statement or answers the question.**

10)  -2**i** + 7**j**

    A) $\sqrt{53}$, 105.9°              B) 53, 105.9°            C) 9, 74.1°           D) $\sqrt{53}$, 74.1°

**SHORT ANSWER.  Write the word or phrase that best completes each statement or answers the question.**

**Solve the problem.**

11)  An airplane is flying on a bearing of 335° at 430 mph. Find the component form of the velocity of the airplane. Round your answer to the nearest hundredth.

12)  A basketball player shoots the ball with a velocity of 13.6 ft/s at an angle of 33.1° with the horizontal. To the nearest tenth, find the magnitude of the horizontal component of the resultant vector.

13)  A force of 90 lb acts on an object at an angle of 55°. A second force of 100 lb acts on the object at an angle of -60°. Find the direction and magnitude of the resultant force.

14)  Determine the resultant effect of three people pulling on a car as shown in the drawing



a = 95.0 lb, b = 45.0 lb, c = 41.0 lb, d = 18°, e = 19°
Round results to an appropriate number of significant digits.