

## Review-Vectors/parametric

Date \_\_\_\_\_ Period \_\_\_\_\_

**Find the magnitude for each vector.**

1)  $\mathbf{a} = \langle 19, -45 \rangle$

**Write each vector in component form.**

2)  $\overrightarrow{AB}$  where  $A = (-8, -1)$   $B = (-4, 0)$

3)  $|\mathbf{n}| = 25, 224^\circ$

**Find the direction angle for each vector.**

4)  $-35\mathbf{i} + 23\mathbf{j}$

**Sketch a graph of each vector.**

5)  $\overrightarrow{AB}$  where  $A = (2, 5)$   $B = (7, 3)$

**Draw a vector diagram to find the resultant of each pair of vectors using the triangle method.**

6)  $\mathbf{m} = \langle 11, 5 \rangle$   $\mathbf{n} = \langle 9, -12 \rangle$

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

7)  $\mathbf{u} = \langle -4, 5 \rangle$   
 $\mathbf{g} = \langle -8, -8 \rangle$   
Find:  $\mathbf{u} + 10\mathbf{g}$

8)  $\mathbf{u} = \langle -11, 6 \rangle$   
Unit vector in the opposite direction of  $\mathbf{u}$

**Find the dot product of the given vectors.**

9)  $\mathbf{u} = \langle 7, -2 \rangle$   
 $\mathbf{v} = \langle 9, -4 \rangle$

**State if the two vectors are parallel, orthogonal, or neither.**

10)  $\mathbf{u} = \langle -9, 0 \rangle$   
 $\mathbf{v} = \langle 0, -9 \rangle$

11)  $\mathbf{u} = \langle -3, 0 \rangle$   
 $\mathbf{v} = \langle 0, 6 \rangle$

**Find the measure of the angle between the two vectors.**

12)  $\mathbf{u} = \langle -1, 4 \rangle$   
 $\mathbf{v} = \langle -2, -8 \rangle$

**Write each pair of parametric equations in rectangular form.**

13)  $x = -\frac{t^2}{5}, y = t$

14)  $x = -\frac{t^2}{6}, y = t$

15)  $x = 5\cos t, y = 5\sin t$

Sketch the curve for each pair of parametric equations.

16)  $x = 5\sin t$ ,  $y = 5\cos t$

- 17) A frog jumps across the floor at an angle of  $60^\circ$  with an initial speed of 8 ft/s.
- i) Write a set of parametric equations for the motion of the frog.
  - ii) Determine how long the frog was in the air.
  - iii) Determine how far the frog traveled in the air.
  - iv) Determine when the frog reached its maximum height.
  - v) Determine the maximum height reached by the frog.

- 18) A rabbit jumps across the floor at an angle of  $71^\circ$  with an initial speed of 3 m/s.
- i) Write a set of parametric equations for the motion of the rabbit.
  - ii) Determine how long the rabbit was in the air.
  - iii) Determine how far the rabbit traveled in the air.
  - iv) Determine when the rabbit reached its maximum height.
  - v) Determine the maximum height reached by the rabbit.
  - vi) Sketch the graph of the parametric equations.

