

**Adv. Algebra and Trig**  
**Chapters 8 & 9 test review**

Name \_\_\_\_\_

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

**Chapter 8**

Find the ordered pair that represents the vectors. Then find the magnitude of each vector.

1.  $A(3,6), B(4,1)$

2.  $A(-1,3), B(-2,2)$

3.  $A(-6,0), B(-3, -6)$

4.  $A(4,5), B(0,7)$

Find the magnitude of each vector and write each vector as the sum of unit vectors.

5.  $\langle 5,6 \rangle$

6.  $\langle -2,4 \rangle$

7.  $\langle -15,12 \rangle$

Find an ordered triple to represent vector  $p$  in each equation if

$\vec{q} = \langle 1,2,-1 \rangle, \vec{r} = \langle -2,2,4 \rangle$  and  $\vec{s} = \langle -4,3,-1 \rangle$

$$\vec{p} = 2\vec{q} + 3\vec{s}$$

$$\vec{p} = -3\vec{r} + \vec{s}$$

8.

$$\vec{p} = 3\vec{q} + \frac{1}{2}\vec{r}$$

$$\vec{p} = \frac{1}{2}\vec{q} - 3\vec{s} + 2\vec{r}$$

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Combine the two parametric equations into one single equation in slope-intercept form.

9.  $x = 3t$ ,  $y = 2 + t$

10.  $x = -1 + 2t$ ,  $y = 4t$

11.  $x = 3t - 10$ ,  $y = t - 1$

Find the inner product and state whether the vectors are perpendicular.

$$\langle 3, 4 \rangle \cdot \langle 2, 5 \rangle$$

$$\langle -5, 3 \rangle \cdot \langle 2, -3 \rangle$$

12.

$$\langle 3, 4, 0 \rangle \cdot \langle 4, -3, 6 \rangle$$

$$\langle 4, 5, 1 \rangle \cdot \langle -1, -2, 3 \rangle$$

Find each cross product

$$\langle 1, 0, 3 \rangle \times \langle 1, 1, 2 \rangle$$

13.  $\langle 3, 0, 4 \rangle \times \langle -1, 5, 2 \rangle$

$$\langle -1, 1, 0 \rangle \times \langle 2, 1, 3 \rangle$$

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**Chapter 9**

Convert from rectangular to polar coordinates:

1. (-3, 2)      2. (4, 5)      3. (0, -4)      4. (-3, -3)

Convert from polar to rectangular coordinates:

5.  $(8, 30^\circ)$       5.  $(9, 45^\circ)$       7.  $(4, \pi/3)$       8.  $(5, \pi/4)$

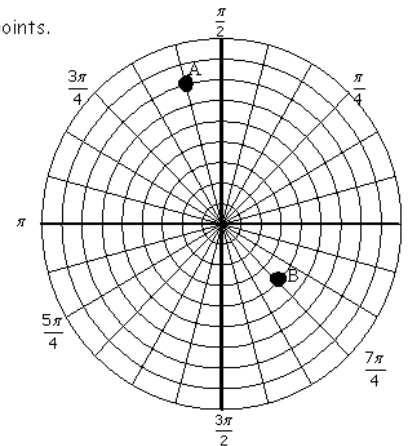
Find the distance between the 2 points on the polar plane.

9.  $p_1\left(3, \frac{5}{4}\pi\right)$  and  $p_2\left(4, \frac{3}{2}\pi\right)$       10.  $p_1\left(-4, \frac{2}{3}\pi\right)$  and  $p_2(-5, 4\pi)$

Give the coordinates of the labeled points.

13. A( , )

14. B( , )



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Now graph the following on the graph below. (Make sure to label the points so that I know which is which.)

15. A  $\left(-2, \frac{7\pi}{6}\right)$

16. B  $\left(-4, \frac{\pi}{3}\right)$

17. Graph  $\theta = \frac{5\pi}{3}$

18. Graph  $r = 6$

19. Write the polar equation for  $x^2 + y^2 = 49$ .

20. Write the rectangular equation for  $r \cos \theta = 9$

