## Review 6.3-6.5

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

Solve the problem.

- 1) For what values of  $\theta$  ( $0 \le \theta < 2\pi$ ) do maximum r-values occur on the graph of the polar equation  $r = 1 + 4 \cos 2\theta$ ? Note that a maximum r-value occurs at a point that is the maximum distance from the pole.
- 1) O = O yr
- 2) For what values of  $\theta$  ( $0 \le \theta < 2\pi$ ) do maximum r-values occur on the graph of the polar equation  $r = 2 \sin 4\theta$ ? Note that a maximum r-value occurs at a point that is the maximum distance from the pole.

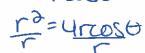
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Determine if the graph is symmetric about the x-axis, the y-axis, or the origin.

3)  $r = -3 \pm 5 \sin \theta$  (verify using the test for symmetry)

(r,0) (r,0) (r,-0) Sample Sample = -3+5sin0  $(-1)[-1]=-3+5\sin(-0)$ Find an equivalent equation in polar coordinates.

4)  $x^2 + y^2 - 4x = 0$ 12-417054)



arch

Arcosb + 315In 0 = 6 r (2000+35176)=6

Find an equivalent equation in rectangular coordinates.  $(x-h)^3 + (y-k)^3 = r^3$   $(x^3 - 10x + 9) + y^3 = 9 + 9$   $(x^3 - 10x + 9) + y^3 = 9$   $(x-3)^3 + y^3 = 9$ 

Determine two pairs of polar coordinates for the point with  $0^{\circ} \le \theta < 360^{\circ}$ .

8) 
$$(4\sqrt{3}, 12)$$

(STZ, 45°)

(8/3,60°)

(-813,240°)

11)

12)

Analyze the graph of the given polar curve. Include the following information: If possible, describe the shape of the graph (circle, rose curve, limacon, etc.), and state the domain, range, and maximum r-value of the graph. State whether the graph is continuous and whether it is bounded. Describe any symmetry that the graph has. Give the equations of any asymptotes or state that the graph has no asymptotes.

ha mood

· Domain allreals

· r-max >6

"Range [0,16]

· no asymptoteo

"Symmetry Xaxis

- Continuous

12)  $r = -2 \cos 5\theta$ 

· rose cone 5 petals

· Domain allreals

· Range [-2,2]

· Symmety x-axis

· continuous

· bounded

or max>2

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Eliminate the parameter.

13) 
$$x = \sqrt{t}$$
,  $y = 2t + 5$ 

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14) 
$$x = t - 5$$
,  $y = \frac{6}{t + 7}$ 

Solve the problem using a graphing calculator.

15) Determine the approximate distance that a baseball travels if it is thrown with a velocity of 116 feet per second at an angle of 10° relative to level ground.

15)

16) Determine whether a baseball hit 107 feet per second at an angle of 30° relative to level ground will clear a 10-foot wall 400 feet away.

16)

$$Y = -10t^{2} + (107 \sin 30) + 100$$

No when the ball hitsthe ground it is about 310 feet away.

17) Determine which will travel farther: baseball x hit 97 feet per second at an angle of 35° relative to level ground or baseball y hit 127 feet per second at an angle of 30°.

17) \_\_\_\_

X= 97 60535° t 5275 feet 4= -16t2 +975m35 +

X = 127005 30° + 4= -16+ + (12751n 30°) By travels

5 434 feet

Paschall