

Warm up (Review)

1. Eliminate the parameter for the equation Write in rectangular form $x = t - 1$ $y = 2t^2 - t$

2. Write the parametric equations for an ellipse with a center of (4, 2) a major vertex at (4,7) and a minor vertex at (6, 2).

$$\frac{(x-4)^2}{4} + \frac{(y-2)^2}{25} = 1$$

$$x = 2\cos\theta + 4$$

$$y = 5\sin\theta + 2$$

Convert the polar equations to rectangular equations

3. $r = 7\sin\theta - 2\cos\theta$ 4. $\theta = \pi/3$ Bonus: $r = \frac{4}{2 + \cos\theta}$

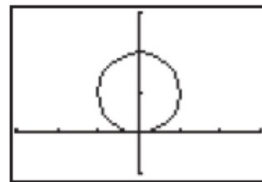
Convert the rectangular point to polar: (Give (-r, + θ) answer)

6. (2, -3)

7. (-4, -6)

35. $x = 3$ — a vertical line

48. $r^2 - 2r \sin \theta = 0$, so $r = 2 \sin \theta$



[-3, 3] by [-1, 3]

36. $y = -2$ — a horizontal line

37. $x^2 + \left(y + \frac{3}{2}\right)^2 = \frac{9}{4}$ — a circle centered at $\left(0, -\frac{3}{2}\right)$ with radius $\frac{3}{2}$

38. $(x + 2)^2 + y^2 = 4$ — a circle centered at $(-2, 0)$ with radius 2

39. $x^2 + \left(y - \frac{1}{2}\right)^2 = \frac{1}{4}$ — a circle centered at $\left(0, \frac{1}{2}\right)$

with radius $\frac{1}{2}$

40. $\left(x - \frac{3}{2}\right)^2 + y^2 = \frac{9}{4}$ — a circle centered at $\left(\frac{3}{2}, 0\right)$ with radius $\frac{3}{2}$

41. $(x + 2)^2 + (y - 1)^2 = 5$ — a circle

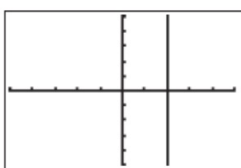
centered at $(-2, 1)$ with radius $\sqrt{5}$

42. $(x - 2)^2 + (y + 2)^2 = 8$ — a circle centered at $(2, -2)$ with radius $2\sqrt{2}$

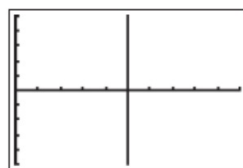
43. $r = 2/\cos \theta = 2 \sec \theta$

44. $r = 5/\cos \theta = 5 \sec \theta$

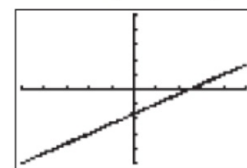
45. $r = \frac{5}{2 \cos \theta - 3 \sin \theta}$



[-5, 5] by [-5, 5]



[0, 10] by [-5, 5]



[-5, 5] by [-5, 5]

1) $y = -2x^2 - 3x$ given $t = x + 3$

$$y = -2t^2 + 9t - 9$$

2) Circle with a center of (2, -3) and a radius of 9

$$x = 9\cos\theta + 2$$
$$y = 9\sin\theta - 3$$

Topics for Test

Parametrics

- evaluate using a table
- graph a parametric
- eliminate the parameter
- create a parametric given a rectangular equation

• PROJECTILE MOTION

Polars

- graph a polar coordinate
- convert a polar coordinate to rectangular
- convert a rectangular coordinate to polar and name in 3 other ways
- convert rectangular equations to polar equations
- convert polar equations to rectangular equations
- graph polar equations

Convert into Parametric equations:

1) $y = -4x^2 - x$ given $t = x - 1$

2) Ellipse with a center of $(-2, 1)$ a major vertex at $(-2, 7)$ and a minor vertex at $(2, 1)$.

Convert the polar equations to rectangular equations

1. $r = 2\cos\theta - 6\sin\theta$

2. $\theta = 2\pi/3$

3. $r = 9$

4. $r = -5\csc\theta$