SATPREP

Name_____

Assignment-Parametric Equation

Date_____

Write each pair of parametric equations in rectangular form.

1) $x = t, \quad y = -\dfrac{t^2}{2}$

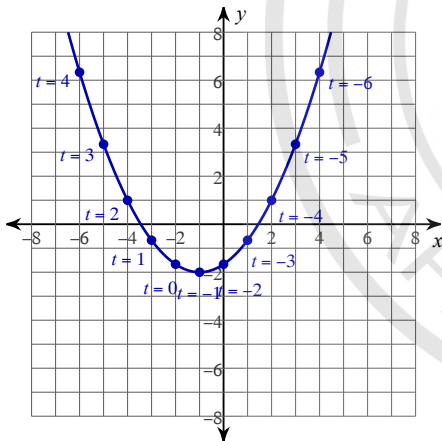2) $x = 2\cos t, \quad y = 2\sin t$

3) $x = 2\sin 2t, \quad y = 2\cos 2t$

4) $x = -2t - 3, \quad y = t^2 + 3t + \dfrac{9}{4}$

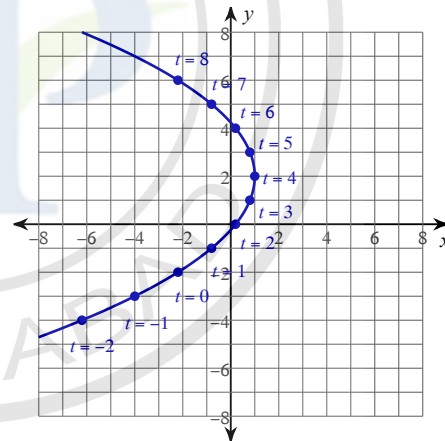5) $x = 3\sin \dfrac{t}{2} + 1, \quad y = 2\cos \dfrac{t}{2} - 1$

6) $x = 5\cos 2t - 2, \quad y = 4\sin 2t - 2$

Write a pair of parametric equations for each conic section.

7)

8)

Use the parameter to write each rectangular equation as a pair of parametric equations.

9) $y = \dfrac{x^2}{3}, \quad t = x$

10) $y = -\dfrac{x^2}{5}, \quad t = x$

Write each pair of parametric equations in rectangular form. Then sketch the curve.

11) $x = 3\sec t, \ y = 4\tan t$

12) $x = 3\sin t, \ y = 3\cos t$

Use the parameter to write each rectangular equation as a pair of parametric equations. State any restrictions on the parameter. Then sketch the curve.

13) $y = \dfrac{x^2}{4}, \ t = \dfrac{x^2}{5}$

14) $y = \dfrac{x^2}{6}, \ t = \dfrac{x^2}{7}$

Answers to Assignment-Parametric Equation

1) $y = -\dfrac{x^2}{2}$

2) $\dfrac{x^2}{4} + \dfrac{y^2}{4} = 1$

3) $\dfrac{x^2}{4} + \dfrac{y^2}{4} = 1$

4) $y = \dfrac{x^2}{4}$

5) $\dfrac{(x-1)^2}{9} + \dfrac{(y+1)^2}{4} = 1$

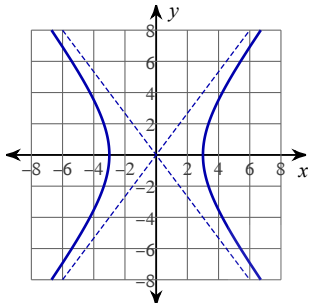6) $\dfrac{(x+2)^2}{25} + \dfrac{(y+2)^2}{16} = 1$

7) $x = -t - 2, \; y = \dfrac{t^2}{3} + \dfrac{2t}{3} - \dfrac{5}{3}$

8) $x = -\dfrac{t^2}{5} + \dfrac{8t}{5} - \dfrac{11}{5}, \; y = t - 2$
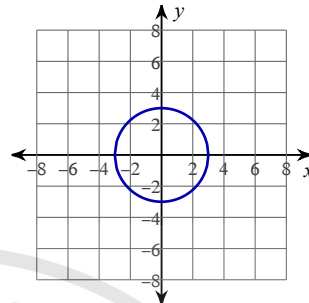
9) $x = t, \; y = \dfrac{t^2}{3}$

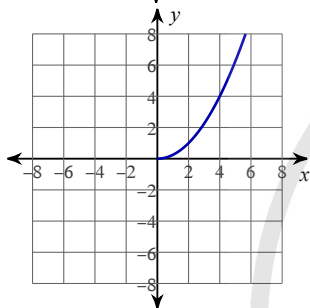10) $x = t, \; y = -\dfrac{t^2}{5}$

11)

$\dfrac{x^2}{9} - \dfrac{y^2}{16} = 1$

12)

$\dfrac{x^2}{9} + \dfrac{y^2}{9} = 1$

13)

$x = \sqrt{5t}, \; y = \dfrac{5t}{4}, \; t \geq 0$

14)

$x = \sqrt{7t}, \; y = \dfrac{7t}{6}, \; t \geq 0$