

Select the correct response.

1. Find an equation for the parabola shown below.

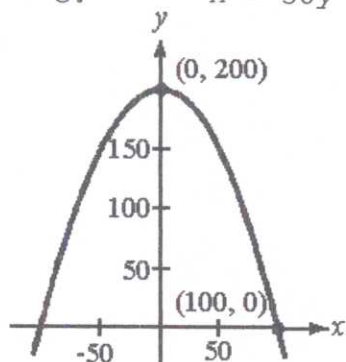
a. $y = -\frac{1}{50}x^2 + 200$

b. None of these

c. $y = -50x^2 + 200$

d. $y = \frac{1}{50}x^2 + 200$

e. $x = 50y^2 + 200$



2. Eliminate the parameter and find a corresponding rectangular equation:

$x = 2 \cos \theta$ and $y = \cos^2 \theta$.

a. $x + y = \cos \theta (2 + \cos \theta)$

b. $x - 2y = 0$

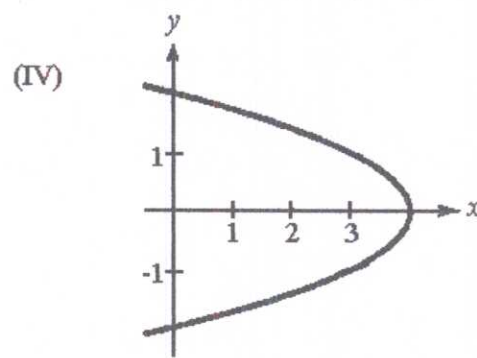
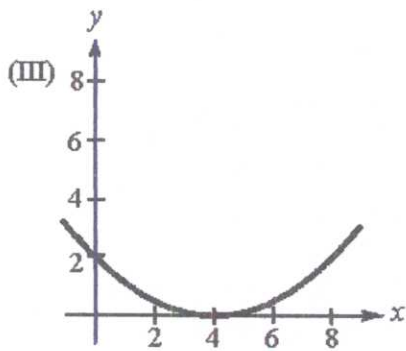
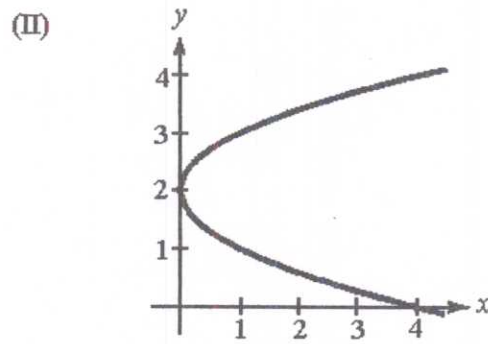
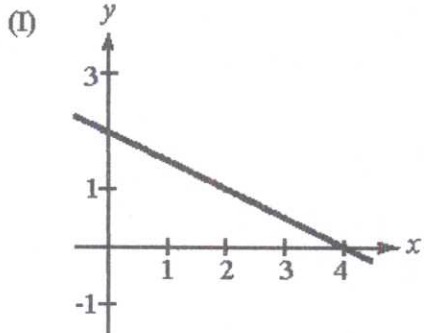
c. None of these

d. $x^2 = 4y$

e. $y = \left[1 - \frac{x}{2} \right]^2$

Select the correct response.

3. Identify the curve represented by the parametric equations: $x = t^2$ and $y = 2 + t$.
- II
 - IV
 - I
 - None of these
 - III



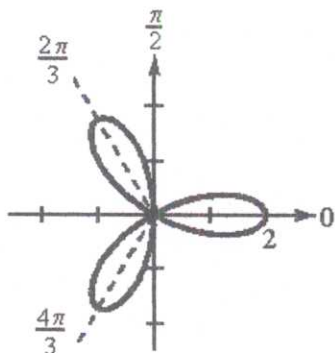
4. Find $\frac{dy}{dx}$ for the curve given by $x = \sqrt{t}$ and $y = (t - 1)^3$.

- $6\sqrt{t}(t - 1)^2$
- $\frac{6(t - 1)^2}{\sqrt{t}}$
- $3(t - 1)^2$
- None of these
- $\frac{1}{6\sqrt{t}(t - 1)^2}$

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Select the correct response.

5. Find the arc length of the curve given by $x = t^2$ and $y = 2t^2 + 1$, $1 < t < 3$.
- a. 40
 - b. $16\sqrt{5}$
 - c. $8\sqrt{5}$
 - d. 24
 - e. None of these
6. Find a polar coordinate equation for $x^2 + y^2 + 2x + 6y = 0$.
- a. $r = -2 \sin \theta - 6 \cos \theta$
 - b. $r = -2 \cos \theta - 6 \sin \theta$
 - c. None of these
 - d. $r = \sqrt{10}$
 - e. $r = 2 \sec \theta + 6 \tan \theta$
7. Find the equation for the graph below.
- a. $r = 2 \cos 3\theta$
 - b. $r = 2 \sin 6\theta$
 - c. $r = 2 \sin 3\theta$
 - d. None of these
 - e. $r = 2 \cos 6\theta$



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8. Calculate the area enclosed by $r = 3 \cos 3\theta$.
- a. $\frac{9\pi}{2}$
 - b. π
 - c. $\frac{9\pi}{8}$
 - d. $\frac{9\pi}{4}$
 - e. None of these
9. Calculate the distance around the graph of the polar curve $r = -3 \cos \theta$.
- a. 6π
 - b. None of these
 - c. 16
 - d. 3π
 - e. $\frac{3}{2}$
10. Identify which conic section is represented by the equation $r = \frac{3}{3 - 4 \sin \theta}$.
- a. Ellipse
 - b. None of these
 - c. Hyperbola
 - d. Circle
 - e. Parabola