

C1 Graphs

1. June 2010 qu.2

(i) Sketch the curve $y = -\frac{1}{x^2}$. [2]

(ii) Sketch the curve $y = 3 - \frac{1}{x^2}$. [2]

(iii) The curve $y = -\frac{1}{x^2}$ is stretched parallel to the y-axis with scale factor 2. State the equation of the transformed curve. [1]

2. Jan 2010 qu.7

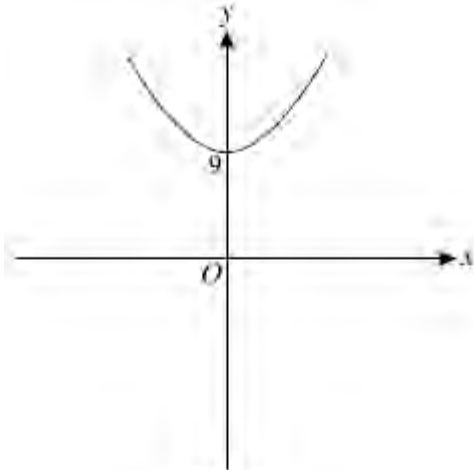


Fig. 1

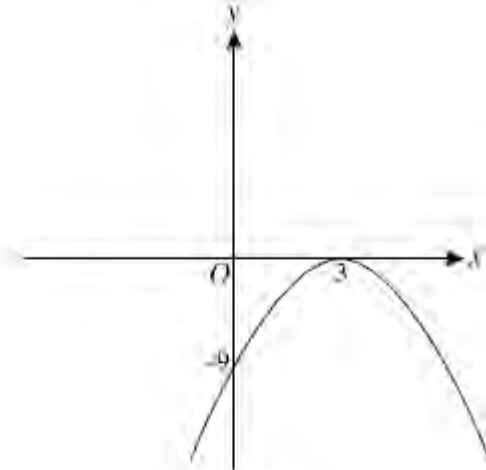


Fig. 2

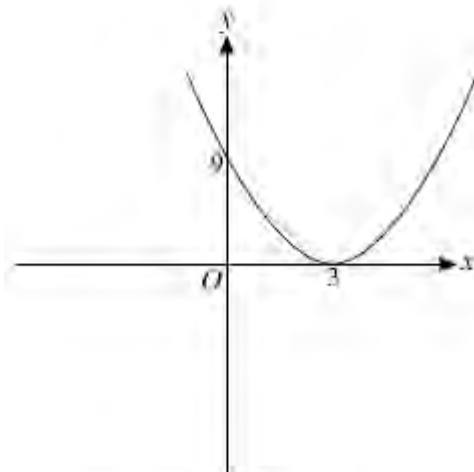


Fig. 3

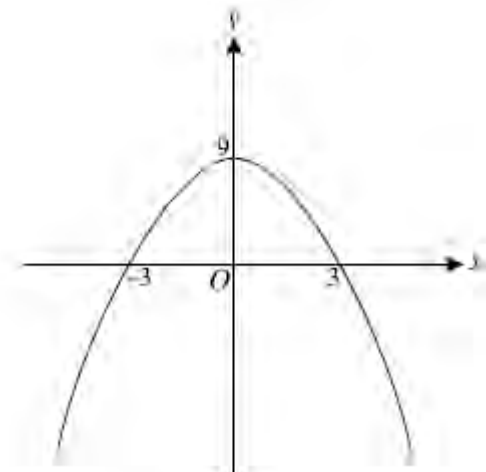


Fig. 4

- (i) Each diagram shows a quadratic curve. State which diagram corresponds to the curve
- (a) $y = (3 - x)^2$, [1]
 - (b) $y = x^2 + 9$, [1]
 - (c) $y = (3 - x)(x + 3)$. [1]
- (ii) Give the equation of the curve which does not correspond to any of the equations in part (i). [2]

3. June 2009 qu.10
- (i) Solve the equation $9x^2 + 18x - 7 = 0$. [3]
 - (ii) Find the coordinates of the stationary point on the curve $y = 9x^2 + 18x - 7$. [4]
 - (iii) Sketch the curve $y = 9x^2 + 18x - 7$, giving the coordinates of all intercepts with the axes. [3]
 - (iv) For what values of x does $9x^2 + 18x - 7$ increase as x increases? [1]
4. Jan 2009 qu.4
- (i) Sketch the curve $y = \frac{1}{x^2}$. [2]
 - (ii) The curve $y = \frac{1}{x^2}$ is translated by 3 units in the negative x -direction. State the equation of the curve after it has been translated. [2]
 - (iii) The curve $y = \frac{1}{x^2}$ is stretched parallel to the y -axis with scale factor 4 and, as a result, the point $P(1, 1)$ is transformed to the point Q . State the coordinates of Q . [2]
5. June 2008 qu.6
- (i) Expand and simplify $(x - 5)(x + 2)(x + 5)$. [3]
 - (ii) Sketch the curve $y = (x - 5)(x + 2)(x + 5)$, giving the coordinates of the points where the curve crosses the axes. [3]
6. Jan 2008 qu.5
- (i) Sketch the curve $y = x^3 + 2$. [2]
 - (ii) Sketch the curve $y = 2\sqrt{x}$. [2]
 - (iii) Describe a transformation that transforms the curve $y = 2\sqrt{x}$ to the curve $y = 3\sqrt{x}$. [3]
7. Jan 2008 qu.6
- (i) Solve the equation $x^2 + 8x + 10 = 0$, giving your answers in simplified surd form. [3]
 - (ii) Sketch the curve $y = x^2 + 8x + 10$, giving the coordinates of the point where the curve crosses the y -axis. [3]
 - (iii) Solve the inequality $x^2 + 8x + 10 \geq 0$. [2]
8. June 2007 qu.2
- (a) On separate diagrams, sketch the graphs of
 - (i) $y = \frac{1}{x}$, [2]
 - (ii) $y = x^4$ [1]
 - (b) Describe a transformation that transforms the curve $y = x^3$ to the curve $y = 8x^3$. [2]
9. Jan 2006 qu.4
- (i) Sketch the curve $y = \frac{1}{x^2}$. [2]
 - (ii) Hence sketch the curve $y = \frac{1}{(x-3)^2}$. [2]
 - (iii) Describe fully a transformation that transforms the curve $y = \frac{1}{x^2}$ to the curve $y = \frac{2}{x^2}$. [3]