

## Equations of Tangents

1. Find the equation of the tangent to the curve  $y = 2x^2 - 5x$  at the point  $(2, -2)$ .
2. Find the equation of the tangent to the curve  $y = x^3 + 6$  at the point  $(1, 7)$ .
3. Find the equation of the tangent to the curve  $y = x^3 - x^2 - 4x$  at the point  $(3, 6)$ .
4. A curve has equation  $y = (2x + 3)^2$ . Find the equation of the tangent to this curve at the point  $(-1, 1)$ .
5. A curve has equation  $y = x\sqrt{x}$ . Find the equation of the tangent to this curve at the point  $(4, 8)$ .
6. A curve has equation  $y = x + \frac{4}{\sqrt{x}}$ . Find the equation of the tangent to the curve at the point  $(1, 5)$ .
7. Find the equation of the tangent to the curve  $y = x^3 - 6x + 1$  at the point where  $x = 2$ .
8. A curve has equation  $y = (x - 1)(x^2 - 2x - 1)$ . Find the equation of the tangent to this curve at the point where  $x = 2$ .
9. A curve has equation  $y = \frac{x^3 + 3x^2}{x}$ . Find the equation of the tangent to this curve at the point where  $x = 1$ .
10. Find the equation of the tangent to the curve  $y = 3x - 4\sqrt{x}$  at the point where  $x = 4$ .
11. Find the equation of the tangent to the curve  $y = \frac{6x + 4}{\sqrt{x}}$  at the point where  $x = 1$ .
12. A curve has equation  $y = x^2 + 9x + 4$ . A tangent to this curve has gradient 5. Find the equation of this tangent.
13. A tangent to the curve  $y = (x - 1)(x - 5)$  has gradient 2. Find the equation of this tangent.
14. A curve has equation  $y = x^3 - 6x$ . There are **two** tangents to this curve with gradient 6. Find the equation of each of these tangents.
15. A curve has equation  $y = x^3 - 3x^2 - 2x$ . There are **two** tangents to this curve with gradient 7. Find the equation of each of these tangents.