

1. Answer each of the following questions, showing all working.

- (a) If $y = -3x + 3$, use limits to find y' .
- (b) If $y = -2x^2 - 2$, use limits to find y' .
- (c) Find y' where $y = -4x + 6$.
- (d) Find y' where $y = -x^2 + 6x + 5$.
- (e) Find y' where $y = 6x^3 - 5x^2 + 6x + 3$.
- (f) Find y' where $y = 4x^7 - 3x^6 + 2x^3 + 3x$.
- (g) Find y' where $y = 2x^2 + 5 + \frac{6}{x} - \frac{1}{x^2}$.
- (h) Find y' where $y = -x - \frac{1}{x} + \frac{2}{x^2} + \frac{6}{x^4}$.
- (i) Find y' where $y = \sin x + 4 \cos x - 4\sqrt{x}$.
- (j) Find y' where $y = 6 \ln x - 6e^x$.
- (k) Find y' where $y = 5x^5 - \frac{3}{x} + 2 \cos x - 3 \sin x + 3\sqrt{x}$.

2. Answer each of the following questions, showing all working.

- (a) If $y = -2x + 5$, use limits to find y' .
- (b) If $y = x^2 + 5$, use limits to find y' .
- (c) Find y' where $y = 5x - 3$.
- (d) Find y' where $y = 4x^2 - x + 4$.
- (e) Find y' where $y = x^3 - 5x^2 + 3x + 6$.
- (f) Find y' where $y = x^4 - 4x^3 + 6x^2$.
- (g) Find y' where $y = 3x^2 - 1 + \frac{1}{x} - \frac{2}{x^2}$.
- (h) Find y' where $y = 5x - \frac{6}{x^2} + \frac{6}{x^4}$.
- (i) Find y' where $y = -6 \cos x + 4 \sin x - 5\sqrt{x}$.
- (j) Find y' where $y = -6e^x - 5 \ln x$.
- (k) Find y' where $y = -4x^2 - \frac{2}{x} + 6e^x + 4 \cos x - 6 \sin x$.

3. Answer each of the following questions, showing all working.

- (a) If $y = 4x - 2$, use limits to find y' .
- (b) If $y = 2x^2 + 1$, use limits to find y' .
- (c) Find y' where $y = -x - 3$.
- (d) Find y' where $y = -2x^2 + 4x - 6$.
- (e) Find y' where $y = x^3 + 4x^2 - 5x + 2$.
- (f) Find y' where $y = 4x^3 - 6x^2 + 3x + 5$.
- (g) Find y' where $y = 5x^2 + 1 + \frac{2}{x} - \frac{4}{x^2}$.
- (h) Find y' where $y = 6x^4 + 6x^3 - 1 - \frac{3}{x^3} - \frac{1}{x^4}$.
- (i) Find y' where $y = -3 \sin x - 5 \cos x - 4\sqrt{x}$.
- (j) Find y' where $y = 4 \ln x + 5e^x$.
- (k) Find y' where $y = 5x^3 - \frac{2}{x} - 6\sqrt{x} + 3e^x - 2 \sin x$.

4. Answer each of the following questions, showing all working.

- (a) If $y = 5x - 2$, use limits to find y' .

- (b) If $y = 5x^2 - 1$, use limits to find y' .
- (c) Find y' where $y = -4x + 1$.
- (d) Find y' where $y = 5x^2 - 3x + 5$.
- (e) Find y' where $y = -x^3 + 5x^2 - 5x + 4$.
- (f) Find y' where $y = x^{12} + 3x^{10} - 2x^7 - 2x^4 + 3x$.
- (g) Find y' where $y = 2x^2 - 4 - \frac{6}{x} + \frac{4}{x^2}$.
- (h) Find y' where $y = 6 - \frac{2}{x} + \frac{2}{x^4}$.
- (i) Find y' where $y = -4\cos x - 5\sin x - 5\sqrt{x}$.
- (j) Find y' where $y = -4e^x - 3\ln x$.
- (k) Find y' where $y = -5x^2 - \frac{4}{x} + 4\sin x + 4e^x + 3\sqrt{x}$.

5. Answer each of the following questions, showing all working.

- (a) If $y = -5x - 3$, use limits to find y' .
- (b) If $y = 4x^2 - 3$, use limits to find y' .
- (c) Find y' where $y = 2x - 3$.
- (d) Find y' where $y = 6x^2 + 5x - 4$.
- (e) Find y' where $y = -6x^3 - 4x^2 + 6x - 6$.
- (f) Find y' where $y = 6x^6 - 5x^3 + 5x$.
- (g) Find y' where $y = x^2 + 3 + \frac{6}{x} + \frac{4}{x^2}$.
- (h) Find y' where $y = \frac{1}{x} - \frac{5}{x^2} - \frac{4}{x^4}$.
- (i) Find y' where $y = -2\cos x + 5\sin x - 2\sqrt{x}$.
- (j) Find y' where $y = -6e^x - \ln x$.
- (k) Find y' where $y = 2x^2 + \frac{4}{x} + 5\ln x + 4\sin x - 6\sqrt{x}$.