Samples **Derivatives SOLUTIONS**

1. $y = 5x^2 + \dfrac{6}{x^8}$, so $y = 5x^2 + 6x^{-8}$, so

$$\begin{aligned} y' &= 2 \times 5x^{2-1} - 8 \times 6x^{-8-1} \\ &= 10x - 48x^{-9} \\ &= 10x - \frac{48}{x^9} \end{aligned}$$

2. $y = 3x^2$, so

$$\begin{aligned} y' &= 2 \times 3x^{2-1} \\ &= 6x \end{aligned}$$

3. $y = -4x^7$, so

$$\begin{aligned} y' &= 7 \times \left(-4x^{7-1}\right) \\ &= -28x^6 \end{aligned}$$