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$$\begin{aligned} \text{a) } D(x^3 - 2x^2 + 5x - 2) &= Dx^3 - D(2x^2) + D(5x) - D2 \\ &= 3x^2 - 2Dx^2 + 5Dx - 0 \\ &= 3x^2 - 2 \cdot (2x) + 5 \cdot 1 \\ &= \boxed{3x^2 - 4x + 5} \end{aligned}$$

$$\begin{aligned} \text{b) } D\left(\frac{2}{3}x^3 - \frac{5}{2}x^2 + x - 1\right) &= D\left(\frac{2}{3}x^3\right) - D\left(\frac{5}{2}x^2\right) + Dx - D1 \\ &= \frac{2}{3} \cdot Dx^3 - \frac{5}{2} Dx^2 + 1 - 0 \\ &= \frac{2}{3} \cdot 3x^2 - \frac{5}{2} \cdot 2x + 1 = \boxed{2x^2 - 5x + 1} \end{aligned}$$

$$\text{c) } D(5 - x^4) = D5 - Dx^4 = 0 - 4x^3 = \boxed{-4x^3}$$

$$\begin{aligned} \text{d) } D\left(\frac{1}{3}x^6 - \sqrt{2}x^2 + 7\right) &= D\left(\frac{1}{3}x^6\right) - D(\sqrt{2}x^2) + D7 \\ &= \frac{1}{3} Dx^6 - \sqrt{2} Dx^2 + 0 \\ &= \frac{1}{3} \cdot 6x^5 - \sqrt{2} \cdot 2x = \boxed{2x^5 - 2\sqrt{2}x} \end{aligned}$$

$$\text{e) } D(\sin x + \cos x) = \boxed{\cos x - \sin x}$$