

$$a) \quad y = (8x^3 - 9x^{-2-\frac{1}{2}} + 6)^5$$

$$y = (8x^3 - 9x^{-\frac{5}{2}} + 6)^5$$

$$y' = 5(8x^3 - 9x^{-\frac{5}{2}} + 6)^4 (8 \cdot 3x^2 - 9(-\frac{5}{2})x^{-\frac{5}{2}-1})$$

$$y' = 5(8x^3 - 9x^{-\frac{5}{2}} + 6)^4 (24x^2 + \frac{45}{2}x^{-\frac{7}{2}})$$

$$b) \quad y = \ln \left(\frac{7x-4}{x^2-2} \right)^{\frac{3}{7}}$$

$$y' = \frac{1}{\left(\frac{7x-4}{x^2-2} \right)^{\frac{3}{7}}} \cdot \frac{3}{7} \left(\frac{7x-4}{x^2-2} \right)^{\frac{3}{7}-1} \cdot \frac{7(x^2-2) - 2x(7x-2)}{(x^2-2)^2}$$

$$y' = \frac{3}{7} \left(\frac{7x-4}{x^2-2} \right)^{\frac{3}{7}-1-\frac{3}{7}} \cdot \frac{7x^2-14-14x^2+4x}{(x^2-2)^2}$$

$$y' = \frac{3}{7} \left(\frac{7x-4}{x^2-2} \right)^{-1} \frac{4x-7x^2-14}{(x^2-2)^2}$$

$$y' = \frac{3}{7} \cdot \frac{4x-7x^2-14}{(7x-4)(x^2-2)}$$