- Sec 9.6: The chain Rule and the power Rule:-

Differentiate the functions:-

6 $g(x) = (3-2x)^{10}$

$\rightarrow g'(x) = 10(3-2x)^9(-2)$

$= -20(3-2x)^9$

14 $g(x) = \dfrac{1}{4x^3+1}$

$\rightarrow g'(x) = \dfrac{(4x^3+1)(0) - 1(4(3)x^2)}{(4x^3+1)^2}$

$= \dfrac{-12x^2}{(4x^3+1)^2}$

20 $y = \dfrac{5\sqrt{1-x^3}}{6} = \dfrac{5}{6}(1-x^3)^{\frac{1}{2}}$

$\rightarrow y' = \dfrac{5}{6}\left(\dfrac{1}{2}\right)(1-x^3)^{-\frac{1}{2}}(-3x^2)$

$= -\dfrac{15}{12}x^3(1-x^3)^{-\frac{1}{2}} = \dfrac{-15x^3}{12(1-x^3)^{\frac{1}{2}}} = \dfrac{-15x^3}{12\sqrt{1-x^3}}$

$= \dfrac{-5x^3}{4\sqrt{1-x^3}}$