Find the domain of $h(x) = \sqrt{4-3x}$. **WRITE YOUR FINAL ANSWER IN INTERVAL NOTATION.** **SCORE: _____ / 3 PTS**

$4 - 3x \geq 0$

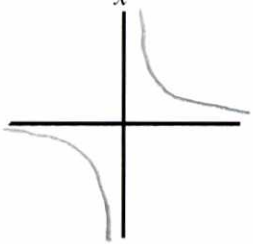
$-3x \geq -4$

$x \leq \frac{4}{3}$

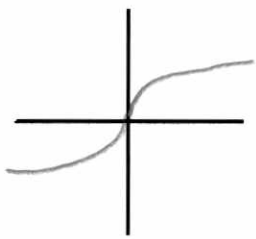
$(-\infty, \frac{4}{3}]$

Sketch the general shapes and positions of the following graphs. **SCORE: _____ / 3 PTS**

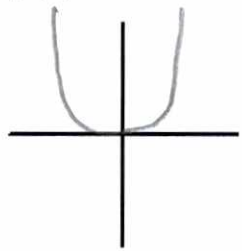
$f(x) = \frac{1}{x^3}$



$f(x) = x^{\frac{1}{3}}$



$f(x) = x^6$



Find the average rate of change of $f(x) = x^3 - 3x$ from $x = -2$ to $x = 0$. **SCORE: _____ / 3 PTS**

$\frac{f(0) - f(-2)}{0 - -2} = \frac{0 - -2}{2} = 1$

For $f(t) = \frac{1}{2-t}$, find the difference quotient $\frac{f(t) - f(3)}{t-3}$. **SCORE: _____ / 5 PTS**

$$\frac{\frac{1}{2-t} - (-1)}{t-3} = \frac{\frac{1}{2-t} + 1}{t-3} = \frac{1 + (2-t)}{(2-t)(t-3)} = \frac{3-t}{(2-t)(t-3)}$$

OR $= \frac{3-t}{2-t} \cdot \frac{1}{t-3} = \frac{-1}{2-t}$

Complete the following definition: **SCORE: _____ / 2 PTS**

A function f is decreasing on an interval if and only if

FOR ALL x_1, x_2 IN THE INTERVAL, IF $x_1 < x_2$ THEN $f(x_1) > f(x_2)$