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

$3 - 4x \geq 0$

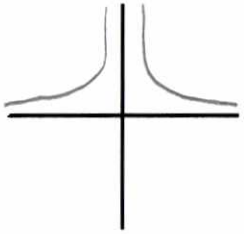
$-4x \geq -3$

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

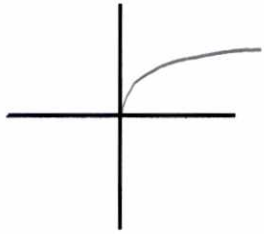
$(-\infty, \frac{3}{4}]$

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

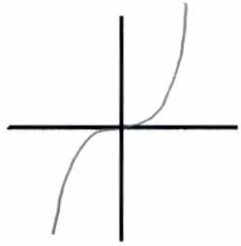
$f(x) = \frac{1}{x^4}$



$f(x) = x^{\frac{1}{4}}$



$f(x) = x^5$



Find the average rate of change of $f(x) = x^3 - 4x$ from $x = -2$ to $x = 0$. **SCORE: _____ / 3 PTS**

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

For $f(t) = \frac{1}{3-t}$, find the difference quotient $\frac{f(t) - f(4)}{t-4}$. **SCORE: _____ / 5 PTS**

$\frac{\frac{1}{3-t} - (-1)}{t-4} = \frac{\frac{1}{3-t} + 1}{t-4} = \frac{1 + (3-t)}{(t-4)(3-t)} = \frac{4-t}{(t-4)(3-t)}$

OR $= \frac{4-t}{3-t} \cdot \frac{1}{t-4} = \frac{-1}{3-t}$

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

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

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