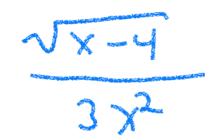
Name:

1. Use the functions  $f(x) = \sqrt{x-4}$  and  $g(x) = 3x^2$  to find the specified function:

a. 
$$(\frac{f}{g})(x)$$



b. 
$$(f \circ g)(x)$$

2. Find the domain for (1b):

$$3 \times ^{2} - 4 \ge 0$$
 $3 \times ^{2} \ge 4$ 
 $3 \times ^{2} \ge 4$ 

3. Identify the vertex and x-intercepts of the graph of  $y = x^2 + 5x + 6$ 

$$\begin{array}{ll}
x + 2.5 \\
\hline
x^2 + 3.5 \\
\hline
+3.5 \times + 6.25
\end{array}$$

$$y = (x + 2.5)^2 - 0.25$$

$$\begin{array}{ll}
y = (x + 2.5)^2 - 0.25
\end{array}$$

$$\begin{array}{ll}
x^2 + 4.5 \times + 6.25
\end{array}$$

$$\begin{array}{ll}
y = (x + 2.5)^2 - 0.25
\end{array}$$

$$\begin{array}{ll}
x^2 + 5 \times + 6.25
\end{array}$$

$$\begin{array}{ll}
y = (x + 3)(x + 3)
\end{array}$$

$$\begin{array}{ll}
x^2 + 5 \times + 6.25
\end{array}$$

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y = (x + 3)(x + 3)
\end{array}$$

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y = (x + 3)(x + 3)
\end{array}$$

$$\begin{array}{ll}
x + 5 \times + 6.25
\end{array}$$

4. Divide using long division. Include a remainder if necessary:  $(x^3 - x - 6) \div (x - 3)$ 

$$\frac{x^{2} + 3x + 8}{x^{3} + 3x^{2}} = \frac{18}{x^{3} + 3x + 8}$$
 $\frac{3x^{3} - x}{x^{3} + 9x}$ 
 $\frac{3x^{3} - x}{x^{3} + 9x}$ 
 $\frac{3x^{3} - x}{x^{3} + 9x}$ 

Name:

- 5. Sketch the graph of the following function:  $f(x) = 2x^3 + 16x^2 + 4x$ . Be sure to:
  - a. Find the real roots for this function
  - b. Apply the leading coefficient test
  - c. Find at least two additional points
  - d. Sketch an appropriate graph

 $0 = x \left[ 2x^{2} + 16x + 44 \right]$   $0 = x \left[ 2x^{2} + 16x + 44 \right]$ 

1 20+5: X: 0, -7.95, -0.25 X= -16 ± 162 - 4(2)(4)

Lhighert ext: 011
leading coeffs +

5(-0.1)= 130

X = - 16 & J. I.y = VI, VIN = 4-11.

X = 76 ± 4514

X = -7.75, -0.25

H++++++