More precal practice *Do all work in notebook!*
Nov. 12, 2021 *Show all work!*

Find the the value of (a) $f \circ g$ and (b) $g \circ f$, then (c) find the domain for $f \circ g$:

1. $f(x) = \sqrt{x-7},\ g(x) = 4x^2$ 2. $f(x) = \sqrt{x+3},\ g(x) = \frac{x}{2}$

3. $f(x) = x + 2, g(x) = \frac{1}{x^2 - 4}$

Identify the vertex and x-intercepts for:

4. $f(x) = x^2 + 8x + 11$ 5. $f(x) = -(x^2 - 2x - 15)$ 6. $f(x) = 4x^2 + 24x - 41$

Use long division to divide:

7. $3x^3 - 5x^2 + 10x - 3 \div 3x + 1$ 8. $7x^3 + 3 \div x + 2$

For the problems below:
(a) Find all real roots
(b) Apply the leading coefficient test
(c) sketch the graph for the equation. If necessary find additional points on the graph.

9. $f(x) = x^3 - x^2 - 2x$ 10. $f(x) = x^3 + 2x^2 - 6x$