

# MATH 118: Quiz 4

Name: key

Directions:

- \* Show your thought process (commonly called "showing your work") when solving each problem for full credit.
- \* If you do not know how to solve a problem, try your best and/or explain in English what you would do.
- \* Good luck!

1. Find the domain of  $g(x) = \frac{10x^2}{10x^2 - 7x - 3}$

① Problems

a) Solve  $10x^2 - 7x - 3 = 0$

$$(10x + 3)(x - 1) = 0$$

$$10x + 3 = 0, \quad x - 1 = 0$$

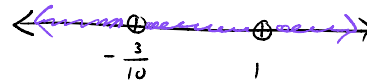
$$x = -\frac{3}{10}, \quad x = 1$$

quadratic equation

$$\begin{array}{cc} 10 & 3 \\ 1 & -1 \end{array} \checkmark$$

b) no square root, N/A

② Remove problems



$$\text{Domain: } (-\infty, -\frac{3}{10}) \cup (-\frac{3}{10}, 1) \cup (1, \infty)$$

2. Find the x- and y- intercepts of the equation  $y = 3x^2 - x - 2$ .

For x: set  $y = 0$ , solve for x.

$$0 = 3x^2 - x - 2$$

$$0 = (3x + 2)(x - 1)$$

$$3x + 2 = 0 \quad x - 1 = 0$$

$$\boxed{x = -\frac{2}{3}, \quad x = 1}$$

For y: set  $x = 0$ , solve for y

$$y = 3 \cdot 0^2 - 0 - 2$$

$$\boxed{y = -2}$$

quadratic

$$\begin{array}{cc} 3 & 2 \\ 1 & -1 \end{array} \checkmark$$

3. What is the slope of the line  $y - 2 = -\frac{1}{2}(x - 3)$ ?

This is in the form  $y - y_1 = m(x - x_1)$

$$\boxed{\text{Slope is } m = -\frac{1}{2}}$$

4. Consider the function

$$f(x) = \begin{cases} x+1 & x < 1 \\ 2x-1 & x \geq 1 \end{cases}$$

Choose your tick marks and sketch a graph of  $f(x)$ .

