

MATH 118: Quiz 3

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. Isolate the variable y and completely simplify:

Follow the 4 steps.

$$2x^2 - 3x(x + xy) - 2y = y$$

$$2x^2 - 3x^2 - 3x^2y - 2y = y$$

$$-x^2 = y + 2y + 3x^2y$$

$$-x^2 = 3y + 3x^2y$$

$$-x^2 = y(3 + 3x^2)$$

$$y = -\frac{x^2}{3 + 3x^2}$$

expand

terms w/ y on one side,
like terms

like terms

factor out y

divide by factor attached
to y

2. Solve the inequality

$$2x + 1 \leq 9 + 4x$$

$$-4x - 1 \quad -1 \quad -4x$$

$$\frac{-2x}{-2} \leq \frac{8}{-2}$$

$$x \geq -4$$

or

$$-4 \leq x$$

3. Solve the equation $3x^2 - 4x = -1$

↑ quadratic.

put in form $ax^2 + bx + c = 0$

$$3x^2 - 4x + 1 = 0$$

Now pick 1 of 3 methods. Every other method is wrong, like dividing by x .

I choose method 1: factoring.

$$a = 3, \quad b = -4, \quad c = 1$$

$$\begin{array}{c} 3 \\ 1 \end{array} \begin{array}{c} x-1 \\ -1 \end{array} \text{ works.}$$

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

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

zero-product
property

$$3x = 1$$

$$\boxed{x = 1}$$

$$\boxed{x = \frac{1}{3}}$$