Chapter 1 Review

MA 123

January 15, 2016

Some Housekeeping Notes

- If you did not receive a syllabus, please get one before you leave today.
- Clickers
- WebWork

Solving Equations

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Functions

Definition

A *function* f is an expression that maps each element x to exactly one element $f(x)$.

$f : A \to B$

A is called the *domain*.

B is called the *codomain*.

$\{f(x) : x \in A\}$ is called the *range*.

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  $x \geq \frac{-1}{3}$
  $[\frac{-1}{3}, \infty)$

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$f^{-1}(x) = \frac{x-6}{5}$

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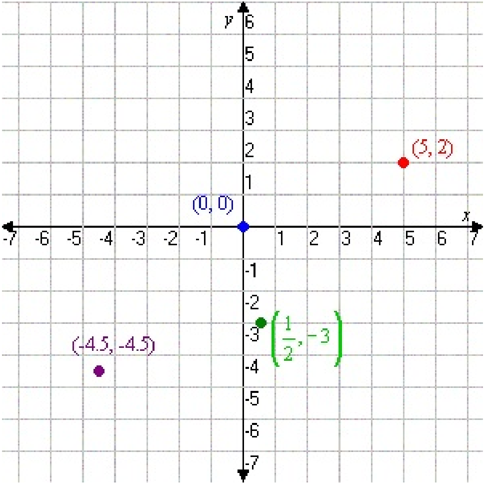
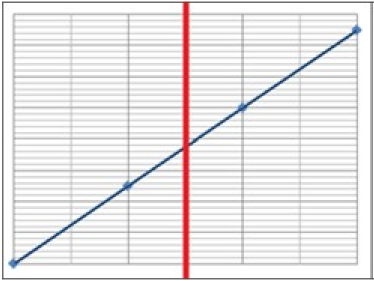
$x = 5y + 6$
$x - 6 = 5y$
$\frac{x-6}{5} = y$
$f^{-1}(x) = \frac{x-6}{5}$
You can check that two functions are inverses by using composition of functions to show that each results in x..
$f(f^{-1}(x)) = f(\frac{x-6}{5}) = 5(\frac{x-6}{5}) + 6 = x - 6 + 6 = x$
$f^{-1}(f(x)) = f^{-1}(5x + 6) = \frac{5x+6-6}{5} = \frac{5x}{5} = x$

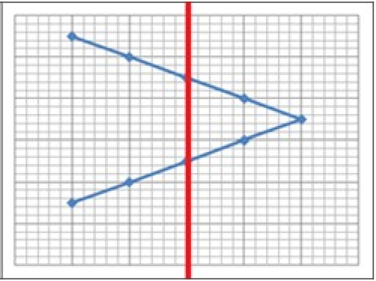
Cartesian Plane



Functions vs. Non Functions



Function



Non-Function

Lines and Linear Functions

Slope

The slope of a line through two points (x_1, y_1) and (x_2, y_2) can be found by slope $= m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$

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Slope-Intercept Form

A line with slope m and y-intercept b has equation:
$y = mx + b$

Please see the Online Course Text for more Review in Chapter 1.

Omit Examples 4,5,13,14,15 - These examples are correct, but will not be in the homework nor will be tested.