Algebra 2

Lesson 6-7

Inverse Relations and

Functions

Goal: to find inverse relations or functions

What is wrong with the following headline? What should it be?

Mayor's Salary Restored
At last night's council meeting, the town approved a 20% increase in the mayor's salary. This follows last year's 20% decrease. The mayor's

In the news story, they were trying to say that a 20% increase will "undo" a 20% decrease (which it does not). When you are looking for inverse functions, you are looking for what will "undo" the function.

If a relation pairs elements *a* of the domain with elements *b* of the range, the inverse pairs *b* with *a*.

(a, b) the inverse is (b, a)

If both are functions, then they are inverse functions.

Name the inverse:

Are they inverse functions?

To find the inverse of a function, you switch the domain and range. In an equation, this means that you switch x and y. You then solve for the new y. This will be the inverse of the original equation.

Find the inverse:

y = 2x + 8

$$x = 2y + 8$$

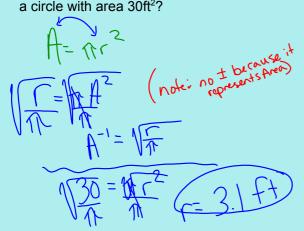
 $y = 5x^2 + 2$
 $x = 5y^2 + 3$
 $x = 5y^2 + 3$

g(x) =
$$-\frac{2}{3}x + 7$$

a) domain of g? $\begin{cases} x - \frac{2}{3}x + 7 \\ -\frac{2}{3}x + 7 \end{cases}$
b). g⁻¹? $\begin{cases} x - \frac{2}{3}x + 7 \\ -\frac{2}{3}x + 7 \end{cases}$

- c). domain of inverse? Q
- d). is inverse a function? $\backslash \ell S$

What is the formula for finding the area of a circle? Find its inverse. What is the radius of a circle with area 30ft²?



If
$$(f^1 \circ f)(x) = x$$
 and $(f \circ f^1)(x) = x$, then the functions are one-to-one.

$$f^{-1}(f(x)) = x - f(f^{-1}(x)) = x$$

Let $g(x) = \frac{4}{x+2}$

Find:

$$g^1 = \frac{4}{x} - 2$$

$$g^1 = \frac{4}{x} - 2$$

$$g^2 = \frac{4}{x} - 2$$

$$g^3 = \frac{4}{x} - 2$$

$$g^4 = \frac{4}{x} - 2$$

$$g^$$

Hwk: pg 410-411 #10-24 evens, 54 - 62 (4th)