1. Suppose your cell phone plan charges a fixed rate of $10 per month plus 7 cents per minute. Create a table that shows the relationship between the total number of minutes you might use each month, ***m***, and your total monthly cell phone bill, ***t***.

t = 0.07m + 10

1. Find your bill if you talked for 80 minutes.

$t = 0.07(80) + 10 = \$15.60$

2. Find the number of minutes you talked if your bill was $18.75.

$18.75 = .07m + 10$

$-10 \quad -10$

$\frac{8.75}{.07} = \frac{.07m}{.07}$

$m = 125$ min

1. Suppose your cell phone plan charges a fixed rate of $10 per month plus 7 cents per minute. Create a table that shows the relationship between the total number of minutes you might use each month, ***m***, and your total monthly cell phone bill, ***t***.

t = 0.07m + 10

1. Find your bill if you talked for 80 minutes.
2. Find the number of minutes you talked if your bill was $18.75.

How do these two questions relate to the concept of the inverse of a function?

The first questions gives you the domain and asks for the range, whereas, the second question gives you the range and asks for the domain.
It's like your just switching x's and y's.

SAS2 Question 8

SAS2 Questions 9 & 10

Agile Mind - Topic 2 - Exploring pg 5

SAS2 Question 11

Agile Mind - Topic 2 - Exploring pg 6

SAS2 Question 12

Agile Mind - Topic 2 - Exploring pg 7

SAS2 Question 13

Agile Mind - Topic 2 - Exploring pg 7

SAS2 Question 14

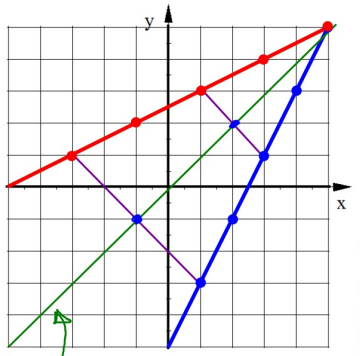
From the Bellwork:

Original Function:

X	Y
1	–3
2	–1
3	1
4	3
5	5

Inverse Relation:

X	Y
-3	1
-1	2
1	3
3	4
5	5



What is the geometric relationship between the Original function and the Inverse?

The inverse is a reflection of the original over the line y = x.

Line of Reflection is exactly in the middle of the original & inverse

SAS2 Question 14

Agile Mind - Topic 2 - Exploring pg 8

SAS2 Question 15

Agile Mind - Topic 2 - Exploring pgs 9 & 10

The inverse relation of every Linear Function is...

another Linear Function

Two ways to find the equation of the inverse relation for a linear function:

<u>One Method</u>:

- Take a table of values from the original function and switch the x & y - values.
- Then, use this new table to find the new equation of the inverse.

Two ways to find the equation of the inverse relation for a linear function:

<u>Another Method</u>:

- Take the original equation and switch the x & y (indep & dep) variables.
- Then, solve this new equation for y (new indep variable).

This table represents a linear function, f(x).
Find the equation of the inverse relation, g(x).

Original function f(x)

X	f(x)
1	19
2	27
3	35
4	43
5	51

Inverse function g(x)

X	g(x)
19	1
27	2
35	3
43	4
51	5

$\Delta x = 27-19$

$\Delta y = 2-1$

$m = \frac{1}{8}$

$y = \frac{1}{8}x + b$

use (19, 1) to find b

$1 = \frac{1}{8}(19) + b$

$1 = \frac{19}{8} + b$

$b = 1 - \frac{19}{8}$

$= \frac{8}{8} - \frac{19}{8}$

$b = -11/8$

$g(x) = \frac{1}{8}x - \frac{11}{8}$

The equation of this original linear function is

$y = 8x + 11$

Original function f(x)

X	f(x)
1	19
2	27
3	35
4	43
5	51

Write the equation of the inverse relation using this original equation.

$y = 8x + 11$

$\Downarrow$

$x = 8y + 11$

$-11 \quad -11$

$\frac{x - 11}{8} = \frac{8y}{8}$ $\Rightarrow$ $y = \frac{x-11}{8}$

Show that these the two equations for the inverse of f(x) are equal.

Using the table values:

$y = \frac{1}{8}x - \frac{11}{8}$

Using the equation of f(x).

$y = \frac{x - 11}{8}$

$= \frac{x}{8} - 11$

$= \frac{1}{8}x - 11$

Write the equation of the inverse relation for the following linear function:

$y = -6x + 18$ $\longrightarrow$ $x = -6y + 18$

$-18 \quad -18$

$\frac{x - 18}{-6} = \frac{-6y}{-6}$

$y = \frac{x-18}{-6} = \frac{x}{-6} + 3 = -\frac{1}{6}x + 3$

Hwk #9:

SAS2 Topic 2: Problems 17-21.