BF - Geometry I WEDNESDAY 4-25-12

① DEFINE FUNCTION

② Pick an integer between 1 and 20.

⇒ Add 7

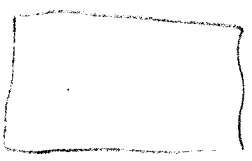
⇒ Multiply by 4

⇒ Minus 6

⇒ Divide by 2

WHAT have you got NOW?

Your starting number WAS:



Geometry 1 ⇒ HW Review 5

Inverses?

① $f(x) = x + 7$
$g(x) = x - 7$

$f[g(x)] \Rightarrow (x-7) + 7$
$= x$ ✓

$g[f(x)] \Rightarrow (x+7) - 7$
$= x$ ✓

Yes, inverses

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

$g[f(x)] = 3\left(\frac{x-2}{3}\right) - 2$
$= x - 2 - 2$
$= x - 4$ No $\neq x$

NOT inverses

③ $f(x) = 3x + 4$
$g(x) = 3x - 4$

$f[g(x)] = 3(3x-4) + 4$
$= 9x - 12 + 4$
$= 9x - 8 \neq x$

NO, NOT inverses

④ $g(x) = 2x + 8$
$f(x) = \frac{1}{2}x - 4$

$g[f(x)] = 2\left(\frac{1}{2}x - 4\right) + 8$
$= x - 8 + 8$
$= x$ ✓

$f(g(x)) = \frac{1}{2}(2x+8) - 4$
$x + 4 - 4 = x$ ✓

Yes, inverses

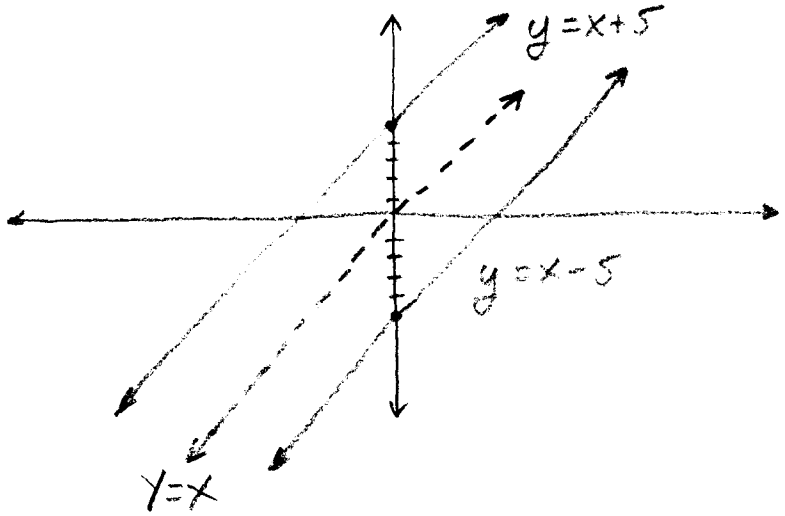
Geo I HW Review

⑤ $f(x) = x - 5 = y$

swap

$y - 5 = x$

$f^{-1}(x) = y = x + 5$



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⑥ $f(x) = \frac{4}{5}x - 7 = y$

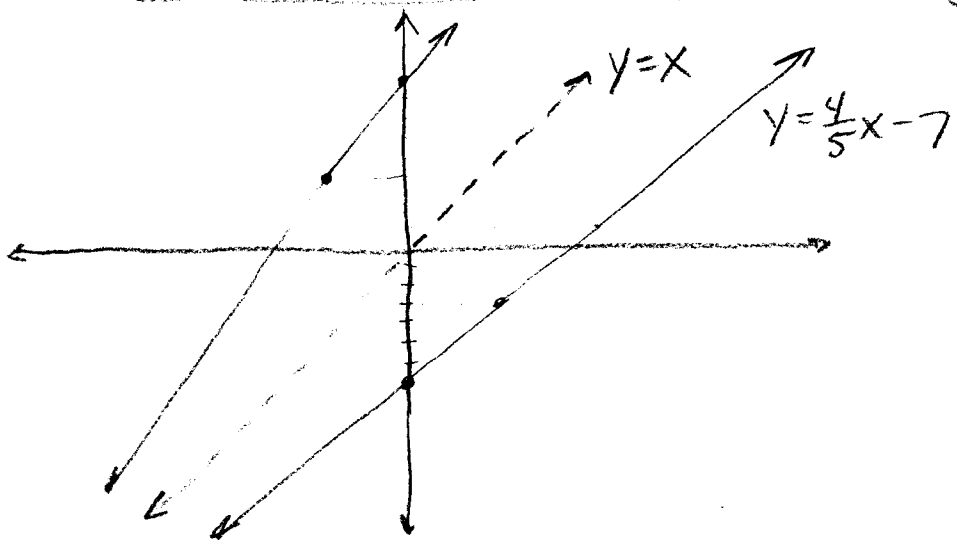
swap

$\frac{4}{5}y - 7 = x$

$\frac{5}{4} \cdot \frac{4}{5}y = (x + 7)\frac{5}{4}$

$f^{-1}(x) = y = \frac{5}{4}x + \frac{35}{4}$

$\frac{35}{4} = 8\frac{3}{4}$



Geometry 1 - Mr. C. Name_____

Practice Set 1 - Inverses of Linear Functions

Date_____ Period____

Find the inverse of each function.

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

2) $f(x) = \frac{6 + 2x}{3}$

3) $f(x) = \frac{1}{4}x + \frac{1}{4}$

4) $f(x) = \frac{x - 17}{4}$

5) $g(x) = 2x - 1$

6) $f(x) = x - 2$

7) $g(x) = \frac{12 - 8x}{3}$

8) $g(x) = 6x + 3$

Use the composition of the two given functions to show if they are inverses.

9) $f(x) = -2x$
$h(x) = -\frac{1}{2}x$

10) $f(x) = -x + 3$
$g(x) = -x + 3$

11) $f(x) = x - 1$
$g(x) = x + 1$

12) $g(x) = \frac{-12 - 5x}{4}$
$f(x) = \frac{-4x - 12}{5}$

13) $h(x) = \frac{-4x - 8}{3}$
$f(x) = -2x - 10$

14) $g(x) = -2 + \frac{3}{5}x$
$f(x) = \frac{5}{3}x + \frac{10}{3}$

15) $f(x) = -\frac{5}{3}x - \frac{10}{3}$
$g(x) = \frac{-3 + x}{3}$

16) $h(x) = x + 3$
$f(x) = x + 4$

Find the inverse and graph the function with its inverse. Graph the dashed line y = x.

17) $f(x) = \frac{3x + 3}{2}$

18) $g(x) = 4x + 13$

19) $g(x) = \frac{-12 + x}{3}$

20) $h(x) = \frac{3}{10}x - \frac{3}{2}$

Answers to Practice Set 1 - Inverses of Linear Functions (ID: 1)

1) $g^{-1}(x) = -1 + \frac{3}{2}x$

2) $f^{-1}(x) = \frac{3x - 6}{2}$

3) $f^{-1}(x) = 4x - 1$

4) $f^{-1}(x) = 4x + 17$

5) $g^{-1}(x) = \frac{1}{2}x + \frac{1}{2}$

6) $f^{-1}(x) = x + 2$

7) $g^{-1}(x) = \frac{-3x + 12}{8}$

8) $g^{-1}(x) = \frac{1}{6}x - \frac{1}{2}$

9) Yes

10) Yes

11) Yes

12) Yes

13) No

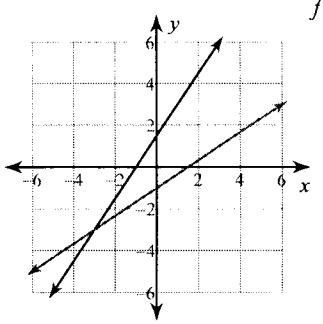
14) Yes

15) No

16) No

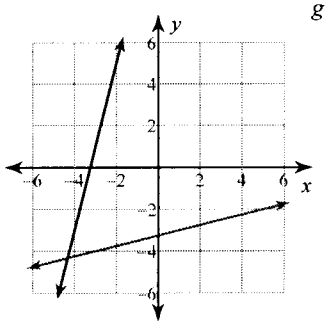
17)

$f^{-1}(x) = \frac{2x - 3}{3}$



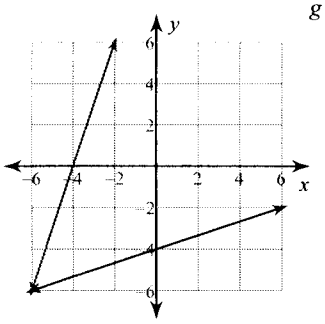
18)

$g^{-1}(x) = \frac{1}{4}x - \frac{13}{4}$



19)

$g^{-1}(x) = 3x + 12$



20)

$h^{-1}(x) = 5 + \frac{10}{3}x$