

BF - Geometry I Wednesday 4-20-11

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 $\Rightarrow$ HW Review

Inverses?

$$\textcircled{1} \quad f(x) = x + 7$$

$$g(x) = x - 7$$

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

$$= x \checkmark$$

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

$$= x \checkmark$$

Yes, inverses

$$\textcircled{2} \quad g(x) = 3x - 2$$

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

$$g[f(x)] = 3\left(\frac{x - 2}{3}\right) - 2$$

$$= x - 2 - 2$$

$$= x - 4 \neq x$$

Not inverses

$$\textcircled{3} \quad f(x) = 3x + 4$$

$$g(x) = 3x - 4$$

$$f[g(x)] = 3(3x - 4) + 4$$

$$= 9x - 12 + 4$$

$$= 9x - 8 \neq x$$

No, not inverses

$$\textcircled{4} \quad g(x) = 2x + 8$$

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

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

$$= x - 8 + 8$$

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

$$x + 4 - 4 = x \checkmark$$

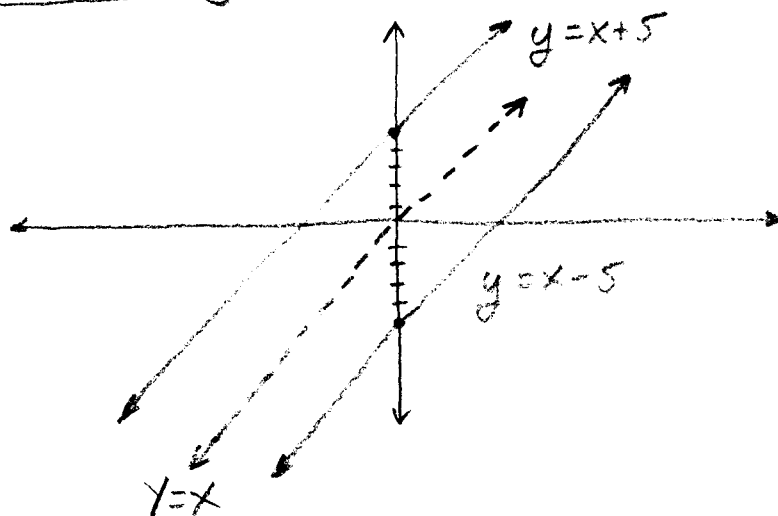
Yes, inverses

$$\textcircled{5} f(x) = x - 5 = y$$

SWAP

$$y - 5 = x$$

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



$$\textcircled{6} f(x) = \frac{4}{5}x - 7 = y$$

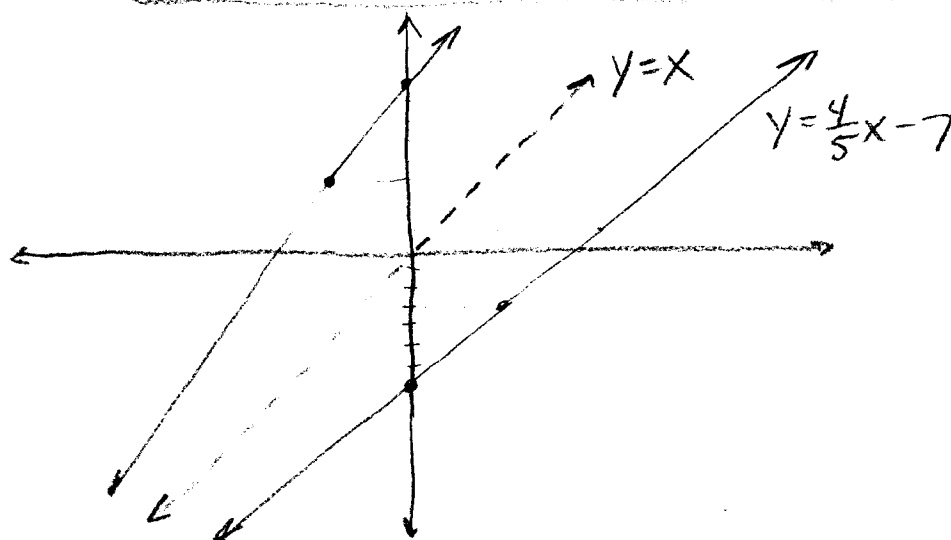
SWAP

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

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

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

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



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

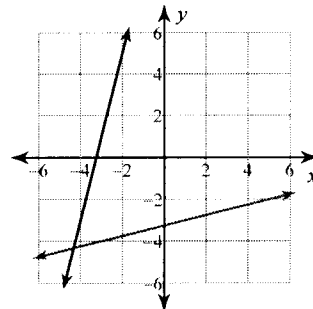
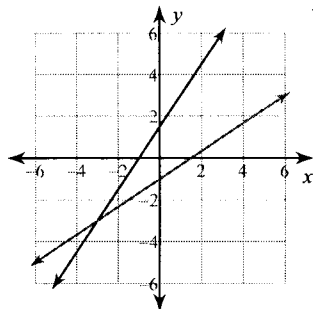
16) No

17)

18)

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

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



19)

20)

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

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

