

F.BF.B.4: Inverse of Functions 1

1 What is the inverse of the function $y = 4x + 5$?

- 1) $x = \frac{1}{4}y - \frac{5}{4}$
- 2) $y = \frac{1}{4}x - \frac{5}{4}$
- 3) $y = 4x - 5$
- 4) $y = \frac{1}{4x+5}$

2 If $f(x) = 12x - 4$, then the inverse function $f^{-1}(x)$ is

- 1) $f^{-1}(x) = \frac{x+1}{3}$
- 2) $f^{-1}(x) = \frac{x}{3} + 1$
- 3) $f^{-1}(x) = \frac{x+4}{12}$
- 4) $f^{-1}(x) = \frac{x}{12} + 4$

3 If $f(x) = \frac{1}{2}x + 2$, then the inverse function is

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

4 Given $f(x) = \frac{1}{2}x + 8$, which equation represents the inverse, $g(x)$?

- 1) $g(x) = 2x - 8$
- 2) $g(x) = 2x - 16$
- 3) $g(x) = -\frac{1}{2}x + 8$
- 4) $g(x) = -\frac{1}{2}x - 16$

5 What is the inverse of $f(x) = -6(x - 2)$?

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

6 The inverse of $f(x) = -6x + \frac{1}{2}$ is

- 1) $f^{-1}(x) = 6x - \frac{1}{2}$
- 2) $f^{-1}(x) = \frac{1}{-6x + \frac{1}{2}}$
- 3) $f^{-1}(x) = -\frac{1}{6}x + \frac{1}{12}$
- 4) $f^{-1}(x) = -\frac{1}{6}x + 2$

7 Given $f(x) = -\frac{2}{5}x + 4$, which statement is true of the inverse function $f^{-1}(x)$?

- 1) $f^{-1}(x)$ is a line with slope $\frac{5}{2}$.
- 2) $f^{-1}(x)$ is a line with slope $\frac{2}{5}$.
- 3) $f^{-1}(x)$ passes through the point $(6, -5)$.
- 4) $f^{-1}(x)$ has a y-intercept at $(0, -4)$.

8 Given $f^{-1}(x) = -\frac{3}{4}x + 2$, which equation represents $f(x)$?

- 1) $f(x) = \frac{4}{3}x - \frac{8}{3}$
- 2) $f(x) = -\frac{4}{3}x + \frac{8}{3}$
- 3) $f(x) = \frac{3}{4}x - 2$
- 4) $f(x) = -\frac{3}{4}x + 2$

9 Given the inverse function $f^{-1}(x) = \frac{2}{3}x + \frac{1}{6}$, which function represents $f(x)$?

- 1) $f(x) = -\frac{2}{3}x + \frac{1}{6}$
- 2) $f(x) = -\frac{3}{2}x + \frac{1}{4}$
- 3) $f(x) = \frac{3}{2}x - \frac{1}{4}$
- 4) $f(x) = \frac{3}{2}x - \frac{1}{6}$

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Answer Section

1 ANS: 2

$$x = 4y + 5$$

$$x - 5 = 4y$$

$$\frac{1}{4}x - \frac{5}{4} = y$$

REF: 061909aaii

2 ANS: 3

$$x = 12y - 4$$

$$x + 4 = 12y$$

$$\frac{x + 4}{12} = y$$

REF: 082304aaii

3 ANS: 3

$$x = \frac{1}{2}y + 2$$

$$2x = y + 4$$

$$y = 2x - 4$$

REF: 012315aaii

4 ANS: 2

$$y = \frac{1}{2}x + 8 \quad x = \frac{1}{2}y + 8$$

$$2x = y + 16$$

$$y = 2x - 16$$

REF: 081806aaii

5 ANS: 2

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

$$-\frac{x}{6} = y - 2$$

$$-\frac{x}{6} + 2 = y$$

REF: 011821aaii

6 ANS: 3

$$y = -6x + \frac{1}{2}$$

$$x = -6y + \frac{1}{2}$$

$$x - \frac{1}{2} = -6y$$

$$-\frac{1}{6} \left(x - \frac{1}{2} \right) = y$$

REF: 062217aaii

7 ANS: 3

$$x = -\frac{2y}{5} + 4 \quad y = -\frac{5}{2}(6) + 10 = -5$$

$$5x = -2y + 20$$

$$2y = -5x + 20$$

$$y = -\frac{5}{2}x + 10$$

REF: 082223aaii

8 ANS: 2

$$x = -\frac{3}{4}y + 2$$

$$-4x = 3y - 8$$

$$-4x + 8 = 3y$$

$$-\frac{4}{3}x + \frac{8}{3} = y$$

REF: 061616aaii

9 ANS: 3

$$x = \frac{2}{3}y + \frac{1}{6}$$

$$6x = 4y + 1$$

$$4y = 6x - 1$$

$$y = \frac{6}{4}x - \frac{1}{4}$$

REF: 062321aaii