

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

- If the graph of the equation $y = 2x$ is reflected in the line $y = x$, the equation of the image is
 - $y = 2x$
 - $y = \frac{x}{2}$
 - $y = 2$
 - $y = -\frac{x}{2}$
- Which equation is the inverse of $y = 3x$?
 - $x = 3$
 - $y = \frac{1}{3}x$
 - $y = 3$
 - $x = \frac{y}{3}$
- What is the inverse of $f(x) = -\frac{2}{3}x$?
 - $f^{-1}(x) = \frac{2}{3}x - 3$
 - $f^{-1}(x) = \frac{3}{2}x$
 - $f^{-1}(x) = -\frac{3}{2}x$
 - $f^{-1}(x) = -\frac{2}{3}x$
- Which is an equation of the inverse of $y = \frac{3}{2}x$?
 - $y = \frac{2}{3}x$
 - $y = -\frac{3}{2}x$
 - $y = 3x - 2$
 - $y = \frac{x+3}{2}$
- What is the inverse of the function $y = 3x + 2$?
 - $3y = x + 2$
 - $x = 3y + 2$
 - $y = \frac{1}{3}x - 2$
 - $x = \frac{1}{3}y + \frac{2}{3}$
- If a function is defined by the equation $y = 3x + 2$, which equation defines the inverse of this function?
 - $x = \frac{1}{3}y + \frac{1}{2}$
 - $y = \frac{1}{3}x + \frac{1}{2}$
 - $y = \frac{1}{3}x - \frac{2}{3}$
 - $y = -3x - 2$
- A function is defined by the equation $y = 5x - 5$. Which equation defines the inverse of this function?
 - $y = \frac{1}{5x-5}$
 - $y = 5x + 5$
 - $x = \frac{1}{5y-5}$
 - $x = 5y - 5$
- What is the inverse of the function $y = 2x - 3$?
 - $y = \frac{x+3}{2}$
 - $y = \frac{x}{2} + 3$
 - $y = -2x + 3$
 - $y = \frac{1}{2x-3}$

- 9 What is the inverse of the function $y = 3x - 2$?
- 1) $y = -3x + 2$
 - 2) $y = \frac{x+2}{3}$
 - 3) $y = \frac{x-2}{3}$
 - 4) $3y = 2x$
- 10 What is an equation of the line formed when the line $y = 3x + 1$ is reflected in the line $y = x$?
- 1) $y = 3x - 1$
 - 2) $y = \frac{x-1}{3}$
 - 3) $y = \frac{x}{3} - 1$
 - 4) $x = y$
- 11 What is the inverse of the function $y = 2x + 3$?
- 1) $x = \frac{1}{2}y - \frac{3}{2}$
 - 2) $y = \frac{1}{2}x - \frac{3}{2}$
 - 3) $y = 2x - 3$
 - 4) $x = -2y - 3$
- 12 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) $y = \frac{1}{4x+5}$
- 13 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) $f^{-1}(x) = \frac{x}{12} + 4$
- 14 What equation is the inverse of $y = 13x + 2$?
- 1) $y = 2x + 13$
 - 2) $y = -13x - 2$
 - 3) $y = \frac{x-2}{13}$
 - 4) $y = \frac{x-13}{2}$
- 15 The inverse of the function $2x + 3y = 6$ is
- 1) $y = -\frac{2}{3}x + 2$
 - 2) $y = -\frac{3}{2}x + 3$
 - 3) $y = \frac{3}{2}x + 2$
 - 4) $y = \frac{2}{3}x + 3$
- 16 The inverse of the function $y = 2x - 5$ is
- 1) $y = \frac{1}{2}(x + 5)$
 - 2) $y = \frac{1}{2}(x - 5)$
 - 3) $y = 2x + 5$
 - 4) $y = 5 - 2x$
- 17 What is the inverse of the function $y - 2 = 7x$?
- 1) $y = \frac{2-x}{7}$
 - 2) $y = \frac{2x}{7}$
 - 3) $y = 7x - 2$
 - 4) $y = \frac{x-2}{7}$
- 18 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) $f^{-1}(x) = 2x + 2$

- 19 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) $g(x) = -\frac{1}{2}x - 16$
- 20 A function is defined by the equation $y = \frac{1}{2}x - \frac{3}{2}$. Which equation defines the inverse of this function?
- 1) $y = 2x + 3$
 - 2) $y = 2x - 3$
 - 3) $y = 2x + \frac{3}{2}$
 - 4) $y = 2x - \frac{3}{2}$
- 21 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) $f^{-1}(x) = 6(x + 2)$
- 22 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) $f^{-1}(x) = -\frac{1}{6}x + 2$
- 23 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 $(0, -4)$.
- 24 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) $f(x) = -\frac{3}{4}x + 2$
- 25 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) $f(x) = \frac{3}{2}x - \frac{1}{6}$

F.BF.B.4: Inverse of Functions 1**Answer Section**

1 ANS: 2 REF: 088927siii

2 ANS: 2 REF: 089532siii

3 ANS: 3 REF: 088432siii

4 ANS: 1 REF: 089728siii

5 ANS: 2 REF: 019626siii

6 ANS: 3

$$y = 3x + 2$$

$$x = 3y + 2$$

$$3y = x - 2$$

$$y = \frac{1}{3}x - \frac{2}{3}$$

REF: 010209b

7 ANS: 4

$$y = 5x - 5$$

$$x = 5y - 5$$

REF: 080205b

8 ANS: 1

$$y = 2x - 3$$

$$x = 2y - 3$$

$$2y = x + 3$$

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

REF: 080918b

9 ANS: 2

REF: 011011b

10 ANS: 2

REF: 088530siii

11 ANS: 2

REF: 068635siii

12 ANS: 2

$$x = 4y + 5$$

$$x - 5 = 4y$$

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

REF: 061909aii

13 ANS: 3
 $x = 12y - 4$

$$x + 4 = 12y$$

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

REF: 082304aii

14 ANS: 3 REF: 010434siii

15 ANS: 2 REF: 089024siii

16 ANS: 1 REF: 080028siii

17 ANS: 4 REF: 060126siii

18 ANS: 3

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

$$2x = y + 4$$

$$y = 2x - 4$$

REF: 012315aii

19 ANS: 2

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

$$2x = y + 16$$

$$y = 2x - 16$$

REF: 081806aii

20 ANS: 1

$$y = \frac{1}{2}x - \frac{3}{2}$$

$$x = \frac{1}{2}y - \frac{3}{2}$$

$$2x = y - 3$$

$$y = 2x + 3$$

REF: 080319b

21 ANS: 2

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

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

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

REF: 011821aii

22 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

23 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

24 ANS: 2

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

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

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

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

REF: 061616aaii

25 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