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

1. If the graph of the equation \( y = 2x \) is reflected in the line \( y = x \), the equation of the image is

2. Which equation is the inverse of \( y = 3x \)?

3. What is the inverse of \( f(x) = -\frac{2}{3}x \)?

4. Which is an equation of the inverse of \( y = \frac{3}{2}x \)?

5. What is the inverse of the function \( y = 3x + 2 \)?

6. If a function is defined by the equation \( y = 3x + 2 \), which equation defines the inverse of this function?

7. A function is defined by the equation \( y = 5x - 5 \). Which equation defines the inverse of this function?

8. What is the inverse of the function \( y = 2x - 3 \)?

9. What is the inverse of the function \( y = 3x - 2 \)?

10. What is an equation of the line formed when the line \( y = 3x + 1 \) is reflected in the line \( y = x \)?

11. What is the inverse of the function \( y = 2x + 3 \)?

12. What is the inverse of the function \( y = 4x + 5 \)?

13. What equation is the inverse of \( y = 13x + 2 \)?

14. The inverse of the function \( 2x + 3y = 6 \) is

15. The inverse of the function \( y = 2x - 5 \) is

16. What is the inverse of the function \( y - 2 = 7x \)?

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

18. A function is defined by the equation \( y = \frac{1}{2}x - \frac{3}{2} \). Which equation defines the inverse of this function?

19. What is the inverse of \( f(x) = -6(x - 2) \)?

20. Given \( f^{-1}(x) = -\frac{3}{4}x + 2 \), which equation represents \( f(x) \)?
F.BF.B.4: Inverse of Functions 1b
Answer Section

1 ANS:
\[ y = \frac{x}{2} \]

REF: 088927siii

2 ANS:
\[ y = \frac{1}{3^x} \]

REF: 089532siii

3 ANS:
\[ f^{-1}(x) = -\frac{3}{2} x \]

REF: 088432siii

4 ANS:
\[ y = \frac{2}{3^x} \]

REF: 089728siii

5 ANS:
\[ x = 3y + 2 \]

REF: 019626siii

6 ANS:
\[ y = \frac{1}{3^x} - \frac{2}{3} \]
\[ y = 3x + 2 \]
\[ x = 3y + 2 \]
\[ 3y = x - 2 \]
\[ y = \frac{1}{3}x - \frac{2}{3} \]

REF: 010209b

7 ANS:
\[ x = 5y - 5 \]
\[ y = 5x - 5 \]
\[ x = 5y - 5 \]

REF: 080205b
8 ANS:
\[ y = \frac{x + 3}{2} \]
\[ y = 2x - 3 \]
\[ x = 2y + 3 \]
\[ 2y = x + 3 \]
\[ y = \frac{x + 3}{2} \]
REF: 080918b

9 ANS:
\[ y = \frac{x + 2}{3} \]
REF: 011011b

10 ANS:
\[ y = \frac{x - 1}{3} \]
REF: 088530siii

11 ANS:
\[ y = \frac{1}{2}x - \frac{3}{2} \]
REF: 068635siii

12 ANS:
\[ y = \frac{1}{4}x - \frac{5}{4} \]
\[ x = 4y + 5 \]
\[ x - 5 = 4y \]
\[ \frac{1}{4}x - \frac{5}{4} = y \]
REF: 061909aii

13 ANS:
\[ y = \frac{x - 2}{13} \]
REF: 010434siii

14 ANS:
\[ y = \frac{3}{2}x + 3 \]
REF: 089024siii
15 ANS:
\[ y = \frac{1}{2} (x + 5) \]

REF: 080028siii

16 ANS:
\[ y = \frac{x - 2}{7} \]

REF: 060126siii

17 ANS:
\[ g(x) = 2x - 16 \]
\[ y = \frac{1}{2}x + 8 \quad x = \frac{1}{2}y + 8 \]
\[ 2x = y + 16 \]
\[ y = 2x - 16 \]

REF: 081806aii

18 ANS:
\[ y = 2x + 3 \]
\[ y = \frac{1}{2}x - \frac{3}{2} \]
\[ x = \frac{1}{2}y - \frac{3}{2} \]
\[ 2x = y - 3 \]
\[ y = 2x + 3 \]

REF: 080319b

19 ANS:
\[ f^{-1}(x) = 2 - \frac{x}{6} \]
\[ x = -6(y - 2) \]
\[ -\frac{x}{6} = y - 2 \]
\[ \frac{x}{6} + 2 = y \]

REF: 011821aii
ANS:

\[ f(x) = \frac{4}{3}x + \frac{8}{3} \]

\[ x = \frac{3}{4}y + 2 \]

\[ -4x = 3y - 8 \]

\[ -4x + 8 = 3y \]

\[ \frac{4}{3}x + \frac{8}{3} = y \]

REF: 061616aii