

Name Schlansky
Mr. Schlansky

- 1) Type original function into $y=$
 - 2) write down 3 nice points from the table
 - 3) Switch x and y to create new table
 - 4) Type each choice into $y=$ and see which table matches
- Date _____
Algebra II

Finding the Inverse of a Function Multiple Choice

1. What is the inverse of the function $y = 2x - 3$?

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

3) $y = -2x + 3$

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

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

$y = 2x - 3$

x	y
0	-3
1	-1
2	1

Switch
x and y

x	y
-3	0
-1	1
1	2

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

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

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

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

4) $y = -3x - 2$

$y = 3x + 2$

x	y
0	2
1	5
2	8

Switch
x and y

x	y
2	0
5	1
8	2

3. What is the inverse of $f(x) = 2x + 6$?

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

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

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

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

$y = 2x + 6$

x	y
-2	2
-1	4
0	6

Switch
x and y

x	y
2	-2
4	-1
6	0

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

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

3) $y = 4x - 5$

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

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

$y = 4x + 5$

x	y
-2	-3
-1	1
0	5

Switch
x and y

x	y
-3	-2
1	1
5	0

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

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

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

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

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

$y = -6(x - 2)$

x	y
1	6
2	0
3	-6

Switch
x and y

x	y
6	1
0	2
-6	3

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

1) $g(x) = 2x - 8$

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

② $g(x) = 2x - 16$

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

$$\begin{array}{r|l} x & y \\ -4 & 6 \\ -2 & 7 \\ 0 & 8 \end{array} \begin{array}{l} \text{Switch} \\ x \text{ and } y \end{array}$$

$$\begin{array}{r|l} x & y \\ 6 & -4 \\ 7 & -2 \\ 8 & 0 \end{array}$$

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

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

② $f^{-1}(x) = \frac{x+4}{12}$

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

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

$$\begin{array}{r|l} x & y \\ -4 & -16 \\ 0 & -4 \\ 1 & 8 \end{array} \begin{array}{l} \text{Switch} \\ x \text{ and } y \end{array}$$

$$\begin{array}{r|l} x & y \\ -16 & -1 \\ -4 & 0 \\ 8 & 1 \end{array}$$

8. The inverse of the function $f(x) = \frac{x+1}{x-2}$ is

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

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

② $f^{-1}(x) = \frac{2x+1}{x-1}$

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

$$\begin{array}{r|l} x & y \\ -1 & 0 \\ 1 & -2 \\ 3 & 4 \end{array} \begin{array}{l} \text{Switch} \\ x \text{ and } y \end{array}$$

$$\begin{array}{r|l} x & y \\ 0 & -1 \\ -2 & 1 \\ 4 & 3 \end{array}$$

9. What is the inverse of $f(x) = \frac{x}{x+2}$, where $x \neq -2$?

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

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

② $f^{-1}(x) = \frac{-2x}{x-1}$

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

$$\begin{array}{r|l} x & y \\ -3 & 3 \\ -1 & -1 \\ 0 & 0 \end{array} \begin{array}{l} \text{Switch} \\ x \text{ and } y \end{array}$$

$$\begin{array}{r|l} x & y \\ 3 & -3 \\ -1 & -1 \\ 0 & 0 \end{array}$$

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

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

③ $f(x) = \frac{3}{2}x - \frac{1}{4}$

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

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

there are no nice points!
must do it algebraically!

$$\begin{aligned} y &= \frac{2}{3}x + \frac{1}{6} \\ 6y &= 4x + 1 \\ 6x - 1 &= 4y \\ \frac{6x - 1}{4} &= y \\ \frac{3}{2}x - \frac{1}{4} &= y \end{aligned}$$