Functions and equations

1

$f(x) = 2x + 1$ and $g(x) = x - 3$.
Solve $fg(x) = 11$.

$fg(x) = 2(x - 3) + 1$

$2x - 5 = 11$

Answer _____

2

$f(x) = 3x - 2$ and $g(x) = x + 4$.
Solve $gf(x) = 17$.

$gf(x) = (3x - 2) + 4$

Answer _____

3

$f(x) = x^2$ and $g(x) = x + 1$. Solve $fg(x) = 9$.

$fg(x) =$

Answer _____

4

$f(x) = 4x + 3$. Solve $f^{-1}(x) = 5$.

Answer _____

5

$f(x) = x^2 - 5$ and $g(x) = 4x$. Solve $f(x) = g(x)$.

Answer _____

6

$f(x) = 3x - 8$. Solve $f(x) = f^{-1}(x)$.

Answer _____

7

$f(x) = x^2$ and $g(x) = x + 2$. Solve $fg(x) = gf(x)$.

Answer _____

8

$f(x) = ax + 1$ and $g(x) = x + 2$.
Given that $fg(3) = 21$, find the value of a.

Answer _____

Functions and equations *further practice*

9

$f(x) = 5x - 1$ and $g(x) = 2x$.
Solve $fg(x) = 29$.

Answer _____

10

$f(x) = x + 3$ and $g(x) = x^2$. Solve $gf(x) = 16$.

Answer _____

11

$f(x) = \frac{x + 5}{2}$. Solve $f^{-1}(x) = 7$.

Answer _____

12

$f(x) = x^2 + 2x$ and $g(x) = x - 1$.
Solve $fg(x) = 0$.

Answer _____

13

$f(x) = x^2 - 3x$ and $g(x) = 2x - 6$.
Solve $f(x) = g(x)$.

Answer _____

14

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

Answer _____

15

$g(x) = x^2 + 1$ and $h(x) = 3x - 1$.
Solve $gh(x) = 5$.

Answer _____

16

$f(x) = 2x$ and $g(x) = x + 5$.
Lia says $fg(x) = 2x + 5$, so $fg(x) = 15$ gives $x = 5$. Explain her mistake and solve $fg(x) = 15$.

Answer _____