Composite and Inverse Functions *fluency* ANSWERS

Work out

1 $f(x) = 2x + 1, g(x) = x^2$
Find $fg(3)$ — 19

2 $f(x) = x - 4, g(x) = 3x$
Find $fg(5)$ — 11

3 $f(x) = x^2, g(x) = x + 2$
Find $fg(-5)$ — 9

4 $f(x) = 5x, g(x) = x - 7$
Find $fg(2)$ — −25

5 $f(x) = x + 9, g(x) = 4x + 6$
Find $fg(2)$ — 23

6 $f(x) = x^2 + 1, g(x) = 2x$
Find $fg(-1)$ — 5

Work out

7 $f(x) = 2x + 1, g(x) = x^2$
Find $gf(3)$ — 49

8 $f(x) = x - 4, g(x) = 3x$
Find $gf(5)$ — 3

9 $f(x) = x^2, g(x) = x + 2$
Find $gf(-5)$ — 27

10 $f(x) = 5x, g(x) = x - 7$
Find $gf(3)$ — 8

11 $f(x) = 3x - 1, g(x) = x - 8$
Find $gf(3)$ — 0

12 $f(x) = x^2 - 3, g(x) = 10 - x$
Find $gf(4)$ — −3

Find $fg(x)$. Simplify your answer.

13 $f(x) = 2x + 1, g(x) = x + 3$ — $2x + 7$

14 $f(x) = 3x, g(x) = x - 4$ — $3x - 12$

15 $f(x) = x - 5, g(x) = 2x + 1$ — $2x - 4$

16 $f(x) = 4x + 2, g(x) = \frac{x}{2}$ — $2x + 2$

17 $f(x) = x^2, g(x) = x + 1$ — $x^2 + 2x + 1$

18 $f(x) = 2x - 3, g(x) = x^2$ — $2x^2 - 3$

Find $f^{-1}(x)$

19 $f(x) = 3x - 4$ — $f^{-1}(x) = \frac{x + 4}{3}$

20 $f(x) = x + 7$ — $f^{-1}(x) = x - 7$

21 $f(x) = 5x$ — $f^{-1}(x) = \frac{x}{5}$

22 $f(x) = \frac{x}{2} + 3$ — $f^{-1}(x) = 2x - 6$

23 $f(x) = 4 - x$ — $f^{-1}(x) = 4 - x$

24 $f(x) = 2(x + 5)$ — $f^{-1}(x) = \frac{x - 10}{2}$

Find $f^{-1}(x)$

25 $f(x) = \frac{2x + 1}{5}$ — $f^{-1}(x) = \frac{5x - 1}{2}$

26 $f(x) = \frac{x - 3}{4}$ — $f^{-1}(x) = 4x + 3$

27 $f(x) = \frac{3}{x} - 2$ — $f^{-1}(x) = \frac{3}{x + 2}$

28 $f(x) = \frac{1}{x + 4}$ — $f^{-1}(x) = \frac{1 - 4x}{x}$

29 $f(x) = \frac{x}{x - 1}$ — $f^{-1}(x) = \frac{x}{x - 1}$

30 $f(x) = \frac{2x}{x + 3}$ — $f^{-1}(x) = \frac{3x}{2 - x}$