Composite Functions

1

$f(x) = 3x$ $g(x) = x + 4$

Find $fg(2)$

fg(2): g goes first



the letter next to the bracket goes first

g(2) = ☐

f(☐) = ☐

Answer _____

2

$f(x) = x - 7$ $g(x) = 5x$

Find $fg(3)$

the letter next to the bracket goes first

g(3) = 15

f(15) = ☐

Answer _____

3

$f(x) = 2x + 1$ $g(x) = x^2$

Find $fg(4)$

the letter next to the bracket goes first

g(4) = ☐

f(☐) = ☐

Answer _____

4

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

Find $gf(3)$

the letter next to the bracket goes first

f(3) = ☐

g(☐) = ☐

Answer _____

5

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

Find $fg(-3)$

_____

_____

Answer _____

6

$f(x) = 5x + 2$ $g(x) = x - 3$

Find $fg(x)$

fg(x) = f(☐)

= ☐

Answer _____

7

$f(x) = x + 6$ $g(x) = x^2$

Find $fg(x)$ and $gf(x)$.

Are they the same?

fg(x) = ☐

gf(x) = ☐

Same? _____

8

$f(x) = x + 3$ $g(x) = 4x$

Jo says

$fg(2) = f(2) \times g(2) = 5 \times 8 = 40$.

Explain Jo's mistake, then

find $fg(2)$.

_____

_____

Answer _____

Composite Functions *further practice*

9

$f(x) = 3x - 4$ $g(x) = x^2 + 2$

Find $gf(-1)$

Answer _____

10

The table shows $f(x)$ and $g(x)$ for some values of x. Find $fg(2)$ and $gf(2)$.

x	1	2	3	4	5
$f(x)$	3	5	1	2	4
$g(x)$	4	3	5	1	2

Answer _____

11

Here are the function machines for f and g. Find $fg(x)$.

f x → ×3 → +1 → ?

g x → −2 → ?

$fg(x)$ = _____

12

In a sale, $g(x) = 0.8x$ takes 20% off a price of £x, and $f(x) = x + 4$ adds £4 delivery. A coat costs £65.

Work out $fg(65)$ and $gf(65)$.

Which is cheaper?

Answer _____

13

A square photo has sides of x cm.
A 1 cm border is put all round it.
$f(x) = x + 2$ gives the new side and
$g(x) = x^2$ gives the area of a square.

Find $gf(x)$, then the area when $x = 9$.

Area = _____

14

$g(x) = x - 273$ changes kelvin to degrees Celsius. $f(x) = 1.8x + 32$ changes degrees Celsius to degrees Fahrenheit. Find $fg(x)$.

Use it to change 300 kelvin to degrees Fahrenheit.

Answer _____

15

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

Find $fg(x)$. Give your answer in the form $ax^2 + bx + c$.

$fg(x)$ = _____

16

$f(x) = x + 4$. Find a function $g(x)$, not the same as $f(x)$, so that $fg(x) = gf(x)$. Show that it works.

$g(x)$ = _____