



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Functions · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Functions

Total marks available: 116

● Functions

Q1

[3 marks]

$f(x) = 4x + 3$ and $g(x) = 5x - 2$. Find $fg(x)$, giving your answer in its simplest form.

Q2

[3 marks]

$f(t) = 4t + 8$. Find $f^{-1}(t)$.

Q3

[3 marks]

$f(n) = 2n - 2$. Find $f^{-1}(n)$.

Q4

[3 marks]

$f(t) = 7t - 4$. Find $f^{-1}(t)$.

Q5

[3 marks]

$f(t) = 7t - 6$. Find $f^{-1}(t)$.

Q6

[3 marks]

$f(n) = 5n - 8$ and $g(n) = 6n + 1$. Find $fg(n)$, giving your answer in its simplest form.

Q7

[3 marks]

$f(t) = 6t - 6$ and $g(t) = 6t + 5$. Find $fg(t)$, giving your answer in its simplest form.

Q8

[3 marks]

$f(x) = 8x + 7$. Find $f^{-1}(x)$.

Q9

[3 marks]

$f(x) = 3x - 9$. Find $f^{-1}(x)$.

Q10

[3 marks]

$f(t) = 4t - 2$ and $g(t) = 5t + 6$. Find $fg(t)$, giving your answer in its simplest form.

Q11

[4 marks]

$f(n) = 4n + 7$ and $g(n) = n^2 + 5$. Find $fg(n)$.

Q12

[4 marks]

$f(x) = x^2 - 7x + 5$. Solve $f(x) = -1$.

Q13

[4 marks]

$f(t) = 3t - 4$ and $g(t) = t^2$. Find $fg(t)$.

Q14

[4 marks]

$f(n) = 2n - 8$ and $g(n) = n^2 + 1$. Find $fg(n)$.

Q15

[4 marks]

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

Q16

[4 marks]

$f(t) = t^2 - 12t + 32$. Solve $f(t) = 0$.

Q17

[4 marks]

$f(x) = x^2 - 15x + 51$. Solve $f(x) = -5$.

Q18

[4 marks]

$f(x) = 3x - 5$ and $g(x) = x^2$. Find $fg(x)$.

Q19

[4 marks]

$f(t) = t^2 - 5t$. Solve $f(t) = -6$.

Q20

[4 marks]

$f(n) = 2n - 6$ and $g(n) = n^2 - 2$. Find $fg(n)$.

Q21

[4 marks]

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

Q22

[4 marks]

$f(x) = (6x - 6)/3$. Find $f^{-1}(x)$.

Q23

[5 marks]

$f(n) = 3n - 10$ and $g(n) = 2n$. Solve $fg(n) = n$.

Q24

[4 marks]

$f(t) = (2t + 1)/4$. Find $f^{-1}(t)$.

Q25

[5 marks]

$f(n) = 5n - 19$ and $g(n) = 2n + 2$. Solve $fg(n) = n$.

Q26

[5 marks]

$f(n) = 2n + 10$ and $g(n) = 3n + 5$. Solve $fg(n) = n$.

Q27

[4 marks]

$f(x) = (4x - 8)/4$. Find $f^{-1}(x)$.

Q28

[5 marks]

$f(t) = 2t + 6$ and $g(t) = 3t + 2$. Solve $fg(t) = t$.

Q29

[5 marks]

$f(x) = 5x + 33$ and $g(x) = 3x - 1$. Solve $fg(x) = x$.

Q30

[5 marks]

$f(n) = 5n + 86$ and $g(n) = 3n - 6$. Solve $fg(n) = n$.