



National 5 Mathematics

Functions - Solutions

Marks are indicated in brackets after each question number

2015 Paper 2 Question 2, (2)

$$f(x) = 3x + 2$$

$$f(a) = 3a + 2$$

Since $f(a) = 23$ we have

$$3a + 2 = 23$$

$$3a = 21$$

$$a = 7$$

2016 Paper 1 Question 9, (2)

$$f(x) = \frac{2}{\sqrt{x}}$$

$$f(5) = \frac{2}{\sqrt{5}}$$

$$= \frac{2}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$$

$$= \frac{2\sqrt{5}}{5}$$

2017 Paper 1 Question 1, (2)

$$f(-5) = (-5)^2 + 3(-5)$$

$$= 25 - 15$$

$$= 10$$

2018 Paper 2 Question 6, (2)

$$f(x) = 5 + 4x$$

$$f(a) = 5 + 4a = 73$$

Dropping $f(a)$ gives

$$5 + 4a = 73$$

$$4a = 73 - 5$$



$$4a = 68$$

$$a = \frac{68}{4} = 17$$

2019 Paper 1 Question 1, (2)

$$f(x) = 5x^3$$

$$f(-2) = 5 \cdot (-2)^3$$

$$= 5 \cdot -8$$

$$= -40$$

2022 Paper 1 Question 2, (2)

$$f(-3) = (-3)^3 - 2$$

$$= -27 - 2$$

$$= -29$$