Firrhill High School

Mathematics Department

Level 5

Assessment Questions

# Algebra

# Functions

**(1) 2010 Paper 1 Q.4**

Two functions are given below.

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

$$g(x) = 2x + 7$$

(a) If $f(x) = g(x)$, show that $x^2 - 6x - 7 = 0$.     2

(b) Hence find **algebraically** the values of $x$ for which $f(x) = g(x)$.     2

**(2) 2009 Paper 1 Q.3**

Given that

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

(a) evaluate $f(-4)$     2

(b) find $t$ when $f(t) = 52$.     2

**(3) 2006 Paper 1 Q.3**

Given that $f(x) = 4 - x^2$, evaluate $f(-3)$.     2

**(4) 2005 Paper 1 Q.11**

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$$f(x) = 4\sqrt{x} + \sqrt{2}$$

(a) Find the value of $f(72)$ as a surd in its simplest form.     3

(b) Find the value of $t$, given that $f(t) = 3\sqrt{2}$.     3

**(5) 2003 Paper 1 Q.4**

$$f(x) = 7 - 4x$$

(a) Evaluate $f(-2)$.

1

(b) Given that $f(t) = 9$, find $t$.

2

**(6) 2002 Paper 1 Q.4**

Given that $f(x) = x^2 + 5x$, evaluate $f(-3)$.

2

**(7) 2001 Paper 1 Q.3**

Given that $f(m) = m^2 - 3m$, evaluate $f(-5)$.

2

**(8) 2000 Paper 1 Q.3**

$$f(x) = 2x - 5x^2.$$

Find $f(-2)$.

2

**(9) 1999 Paper 1 Q.10**

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

(a) Find $f(4)$.

1

(b) Given that $f(x) = \sqrt{27}$, find $x$.

3

(10)    1998 Paper 1 Q.3

$$f(x) = \frac{3}{x^2}$$

Find $f\left(\frac{1}{3}\right)$                                    **2**

11) 2015 N5 Paper 2

2.   A function is defined as $f(x) = 3x + 2$.

Given that $f(a) = 23$, calculate $a$.                **2**

12) 2013 Credit Paper 2

2.   Solve the equation

$$2x^2 + 7x - 3 = 0.$$

Give your answers **correct to 1 decimal place.**        **4**

13) 2011 Credit Paper 1

3.   Given that          $f(x) = 5 - x^2$, evaluate $f(-3)$.        **2**

14) 2011 Int 2 Paper 2

11.   Solve the equation

$$4x^2 - 7x + 1 = 0,$$

giving the roots correct to 1 decimal place.            **4**