

## 12.2 Solutions to 12.1 Test

### GCSE Mathematics Functions I

#### Answer 1

( i ) 42

( iii ) 90

( v ) 0

( vii ) 20

( ix )  $-\frac{1}{4}$

( ii ) 6

( iv ) 0

( vi ) 12

( viii ) 9900

( x )  $\frac{3}{4}$

[ 6 marks ]

#### Answer 2

( i ) 3

( ii ) To avoid a division by zero (which is not defined).

[ 1, 2 marks ]

#### Answer 3

( i ) 31

( iii ) 75

( v ) 3

( ii ) 6

( iv ) 7

[ 5 marks ]

#### Answer 4

( i ) 109

( ii )  $300x^2 + 1$

( iii )  $3x^2 + 24x + 49$

[ 1, 2, 3 marks ]

#### Answer 5

4

#### Answer 6

11

[ 3, 3 marks ]

#### Answer 7

( i ) 51

( iii )  $100z + 31$

( ii ) 11

( iv )  $60z + 71$

[ 1, 1, 2, 2 marks ]

#### Answer 8

( a ) ( i )  $f(x) = 9x + 63$

( ii )  $f^{-1}(x) = \frac{x}{9} - 7$

( b ) ( i ) 36

( ii ) -2

[ 1, 2, 1, 1 marks ]

#### Answer 9

( a ) Diagram contains **Subtract 4**, then **Multiply by 11**

( b )  $\frac{x}{11} + 4$  ( c ) ( i ) 220 ( ii ) 8

[ 1, 2, 1, 1 marks ]

#### Answer 10

$13x + 91$

#### Answer 11

$-\frac{1}{4}$

[ 4, 4 marks ]

**Answer 12**

$$x = 2.5$$

[ 4 marks ]

**Answer 13**

( i ) The fourth diagram

$$( \text{ii} ) \quad x + 1$$

$$3x + 1$$

$$2x - 3$$

[ 4 marks ]

**Answer 14**

$$( \text{i} ) \quad 68$$

$$( \text{ii} ) \quad 126$$

$$( \text{iii} ) \quad 9x^2 + 30x + 30$$

[ 2, 2, 4 marks ]

**Answer 15**

$$( \text{a} ) \quad ( \text{i} ) \quad 4$$

$$( \text{ii} ) \quad \sqrt{11} \text{ or } 3.317$$

$$( \text{iii} ) \quad \sqrt{10 - x}$$

$$( \text{b} ) \quad 100$$

[ 2, 2, 3, 3 marks ]

**Answer 16**

$$f^{-1}(x) = \frac{12}{7(8 - x)}, \quad x \neq 8$$

[ 4 marks ]

**Answer 17**

$$f^{-1}(x) = \frac{13 - 5x}{2x + 1}, \quad x \neq -\frac{1}{2}$$

[ 5 marks ]