Multiple choice section

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Answer | C | B | A | D | B | D | A | B | D |

Question 1 [3.1]

C



Question 2 [3.1]

B

b(2b – 4) = b × 2b + b × -4

= 2b2 – 4b

Question 3 [3.2]

A



Question 4 [3.4]

D

, , 

Question 5 [3.4]

B

The dilation factor is the coefficient of the largest power of the variable x. Here it is 4.

Question 6 [3.5]

D

The equation is in the form y = (x – h)2 + k, where h is the horizontal translation and k is the vertical translation. The graph has been translated 1 unit to the right and 3 units down.

Question 7 [3.1]

A

(x + 3)(x + 2) = x2 + 3x + 2x + 6 = x2 + 5x + 6

Question 8 [3.6]

B

Using the difference of two squares

k2 – 25 = (k + 5)(k – 5)

Question 9 [3.7]

D



Multiple-choice total marks: 9

Short answer section

Question 10 2 marks [3.2, 3.5]

(a) HCF is an abbreviation for highest common factor.

(b) The expression  is a quadratic trinomial because it has three terms and the highest power of x is 2.

Question 11 2 marks [3.2]

Factorising involves taking out the highest common factor (HCF) of each term.

For ,  so the HCF is .

Therefore 

Question 12 3 marks [3.1]



Question 13 4 marks [3.2]

a) (i) HCF of 12 and 6 is 6  
(ii) bg = b × g, bga = b × g × a, HCF = bg

(b) HCF = 6bg

(c) 12bg – 6bga = 6bg(2 – a)

Question 14 3 marks [3.2]

(a) Area of small rectangle = length × width

= x × 4

= 4x

(b) Shaded area  
= area of large rectangle – area of small rectangle  
= xy – 4x

(c) Shaded area: xy – 4x = x × y – x × 4

= x(y – 4)

Question 15 3 marks [3.4]

(a) The dilation factor is 5. The graph becomes narrower (or stretched vertically) by a factor of 5.

(b) horizontal translation 4 units left

(c) vertical translation 1 units up

Question 16 4 marks [3.5]

(a)

|  |  |
| --- | --- |
| a | b |
| 1 | 24 |
| 2 | 12 |
| 3 | 8 |
| 4 | 6 |

(b) 

(c) 

Question 17 2 marks [3.5]



Question 18 4 marks [3.2]

(a) The garden is a square.  
Area = length2 = a2

(b) Grass area  
= area of garden – area of fish pond  
= a2 – 4b2

(c) a2 – 4b2 = a2 – (2b)2  
= (a – 2b)(a + 2b)

Question 19 3 marks [3.7]

(a) 2a + 13 + 3a – 3 = 5a + 10

(b) 5(a + 2)

(c)



Short answer total marks: 28

Extended answer section

Question 21 5 marks [3.5]

(a)   m

(b)



(c)   




Question 22 10 marks [3.1, 3.2]

|  |  |
| --- | --- |
| (a) Area of A = xy  (b) (i) length of B = x + z  (ii) Area of B = length × width  = x(x + z)  **PM10_PR_TF_2_02**  (c) Area of A + area of B = xy + x(x + z)  = xy + x2 + xz  = x2 + xy + xz | (d) Area of rectangle = length × width  = (x + z)(x + y)  = x2 + xy + xz + yz  (e) Area of C = length × width = yz  (f) Shaded area  = x2 + xy + xz + yz – yz  = x2 + xy + xz  (g) The answers to (c) and (f) are equal. They are two different ways for finding the shaded area. |

Extended answer total marks: 15

TOTAL test marks: 52