

- 1** Factorise completely.

$$1 + x - y - xy$$

..... [2]

[Total: 2]

- 2** Factorise completely.

$$2x^3 - 18xy^2$$

..... [3]

[Total: 3]

- 3** Expand and simplify.

$$(2x + 3)(x - 2)^2$$

..... [3]

[Total: 3]

- 4** Factorise completely.

$$14x^3 + 49x$$

..... [2]

[Total: 2]

5 Factorise completely.

$$1 - q - a + aq$$

..... [2]

[Total: 2]

6 Factorise completely.

$$5x^2 - 20y^2$$

..... [3]

[Total: 3]

7 Factorise completely.

$$mt - n - m + nt$$

..... [2]

[Total: 2]

8 Factorise completely.

$$2m + 3p - 8km - 12kp$$

..... [2]

[Total: 2]

9 (a) Show that $y = (x + 1)(3 - x)(3 + x)$ can be written as $y = 9 + 9x - x^2 - x^3$.

[2]

- 9 (b) Calculate the x -values of the turning points of $y = 9 + 9x - x^2 - x^3$.
Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$, $x = \dots\dots\dots$ [7]

- (c) The equation $9 + 9x - x^2 - x^3 = k$ has one solution only when $k < a$ and when $k > b$,
where a and b are integers.

Find the maximum value of a and the minimum value of b .

$a = \dots\dots\dots$

$b = \dots\dots\dots$ [3]

[Total: 12]

10 Expand and simplify.

$$(2x - 3)(x + 6)(x - 4)$$

..... [3]

[Total: 3]

11 Simplify.

$$a - 2b - 3a + 7b$$

..... [2]

[Total: 2]

12 Expand and simplify.

$$4(x - 5) - (3 - 2x)$$

..... [2]

[Total: 2]

13 Factorise completely.

$$12a^3 - 21a$$

..... [2]

[Total: 2]

14 Expand and simplify.

$$(x - 3)(x + 1)(3x - 4)$$

..... [3]

[Total: 3]

15 Factorise.

$$4x^2 - y^4$$

..... [2]

[Total: 2]

16 Factorise.

$$5am + 10ap - bm - 2bp$$

..... [2]

[Total: 2]

17 $(x + a)^2 = x^2 + 22x + b$

Find the value of a and the value of b .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots [2]$$

[Total: 2]

18 Expand and simplify.

$$(3x - 5y)(2x + y)$$

$$\dots\dots\dots [2]$$

[Total: 2]

19 Simplify.

$$3a - 5b - a + 2b$$

$$\dots\dots\dots [2]$$

[Total: 2]

20 Simplify.

$$5g - 3h - 7g + 6h$$

$$\dots\dots\dots [2]$$

[Total: 2]

- 21** Factorise completely.

$$14xy - 7y^2$$

..... [2]

[Total: 2]

- 22** Factorise.

$$x^2 - 8xy$$

..... [1]

[Total: 1]

- 23** Simplify.

$$3x - 4x + 7x$$

..... [1]

[Total: 1]

- 24** Simplify.

$$3(2a - b) - b$$

..... [2]

[Total: 2]

- 25** Factorise completely.

$$18px - 27p$$

..... [2]

[Total: 2]

26 Simplify.

$$6(2x + 1) - 5(x - 2)$$

..... [2]

[Total: 2]

27 Renuka's teacher asks her to factorise completely $8x^2 - 12x$.
Renuka writes $2x(4x - 6)$ as her answer.

Explain why she does not score full marks and give the correct answer.

Reason

Correct answer [2]

[Total: 2]

28 Simplify.

$$5f + 7g - 8f + 2g$$

..... [2]

[Total: 2]