

7.2 Exercise

Marks Available : 173

Question 1

Simplify the following expressions by collecting together as many terms as possible.

(i) $2x - 3x + 4x - 7$

(ii) $3 - 4p + 2p$

(iii) $2 - 3y + 2y - 3$

(iv) $2p + p - 3p$

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

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

(vii) $3y + 2y + 1 - 4$

(viii) $- 3k + 2k + 4k + 2 - 5$

(ix) $14 - 12x + 10x - 8$

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

(xi) $£4 + \$6 + £8 - \2

(xii) $\$16 - £4.80 + £9 - \2.20

[2 marks each = 24 marks]

Question 2

(i) Solve these simultaneous equations,

$$11x + 5y = 50$$

$$9x - 5y = 50$$

[7 marks]

(ii) Solve these simultaneous equations,

$$7x + 5y = 60$$

$$2x + 5y = 10$$

[7 marks]

Question 3

Use the fact that $£1 = 100p$ to simplify; $£5 + 60p - £2 + 70p$

[2 marks]

Question 4

Simplify the following expressions, multiplying out the brackets first of all;

(i) $2(x + 1) - 3x$

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

(iii) $8(1 + x) - 3x$

(iv) $3 + 3(y + 1)$

(v) $2(q - 4) - 3q + 3$

(vi) $3 + 2h + 3(2h - 2)$

(vii) $4x - 7 + 2(3 - 2x)$

(viii) $r + 2 + 2(r + 2)$

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

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

[3 marks each = 30 marks]

Question 5

- (i) What is 10% of £56 ?
- (ii) Increase £36 by 20%
- (iii) Decrease £44 by 25%
- (iv) Express $\frac{3}{4}$ as a percentage.
- (v) In a test Azid scored 17 out of 20.
What is this, expressed as a percentage ?

[2 marks each = 10 marks]

Question 6

Showing full working, calculate

(i)

$$\frac{6}{7} - \frac{3}{4}$$

(ii)

$$\frac{2}{3} + \frac{7}{11}$$

(iii)

$$\frac{8}{11} \times \frac{6}{7}$$

(iv)

$$\frac{5}{21} \div \frac{2}{5}$$

[2 marks each = 8 marks]

Question 7

By first factorising the quadratic, solve the following equations;

(i) $x^2 + 13x + 12 = 0$

[3 marks]

(ii) $x^2 + 4x - 12 = 0$

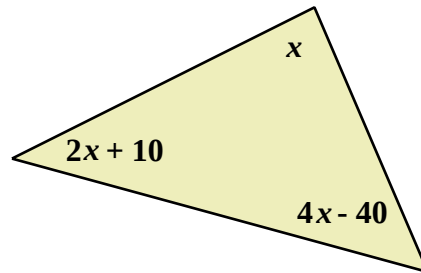
[3 marks]

(iii) $x^2 - 17x - 60 = 0$

[3 marks]

Question 8

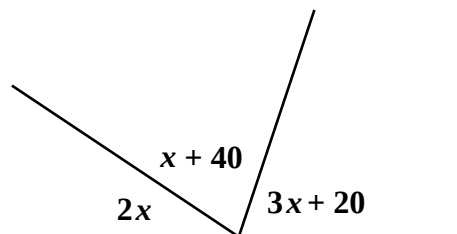
Find the value of x and so list the three angles of this triangle,



[3 marks]

Question 9

Find the value of x and so list the three angles of this diagram,



[3 marks]

Question 10

- (i) Solve these simultaneous equations.
You'll need to decide if they should be combined by addition or subtraction.

$$7x + 4y = 41$$

$$4x + 4y = 32$$

[7 marks]

- (ii) Solve these simultaneous equations.
You'll need to decide if they should be combined by addition or subtraction.

$$8x + 3y = 58$$

$$5x - 3y = 7$$

[7 marks]

Question 11

Solve the following equations:

(i) $2x + 1 = 5$

(ii) $3y + 4 = 16$

(iii) $2p + 5 = 1$

(iv) $1 + 3r = 7$

(v) $7x + 6 = -15$

(vi) $4r - 1 = 2$

(vii) $2x^2 + 1 = 9$

(viii) $3x^3 - 40 = 41$

(ix) $7x^5 - 12 = -5$

[3 marks each = 27 marks]

Question 12

Make x the subject of the following equations

(i) $y = \frac{12 + x}{7}$

(ii) $p = 6x + 8$

(iii) $m = \sqrt{x - 7}$

(iv) $\frac{5}{x} = \frac{k}{8}$

(v) $y = x^2 - 25$

[3 marks each = 15 marks]

Question 13

Write down the value of

- | | | | | |
|--------------------|--------|---------|-----------|---------------------|
| (i) | (ii) | (iii) | (iv) | (v) |
| $25^{\frac{1}{2}}$ | 25^0 | 25^1 | 25^{-1} | $25^{-\frac{1}{2}}$ |

[5 marks]

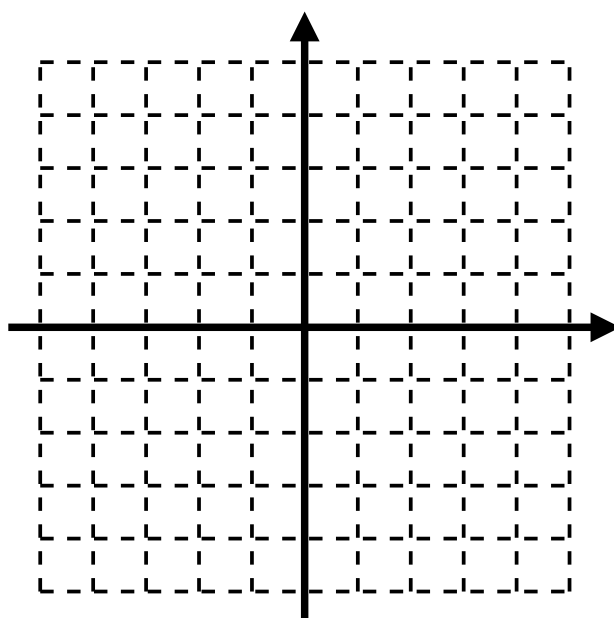
Question 14

(a) On the grid draw the three lines with equations;

(i) $y = 2x - 3$

(ii) $x + y = 3$

(iii) $x = -1$



[3 marks]

(b) Shade in the triangle formed.

[1 mark]

(c) Determine the area of the triangle that you have shaded.

[5 marks]