

Mixed Exercise 1

1.

(a) Simplify $3p + 2q - p + 2q$

.....
(2)

(b) Simplify $3y^2 - y^2$

.....
(1)

(c) Simplify $5c + 7d - 2c - 3d$

.....
(2)

(d) Simplify $4p \times 2q$

.....
(1)

2.

The diagram shows a 5-sided shape.
All the sides of the shape are equal in length.

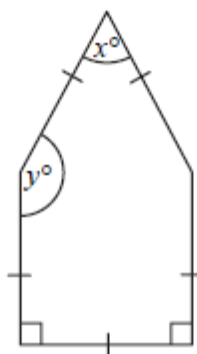


Diagram NOT accurately drawn

(a) (i) Find the value of x .

$x =$

(ii) Give a reason for your answer.

.....
(2)

(b) Work out the value of y .

$y =$
(2)

3.

The diagram shows a wall with a door in it.

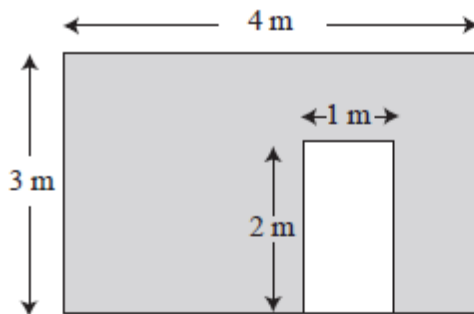


Diagram NOT
accurately drawn

(a) Work out the shaded area.

..... m²
(3)

Meg can cover the shaded area with 680 tiles.

She buys extra tiles in case she breaks some.

To work out the total number of tiles to buy, Meg increases 680 by 10%.

(b) (i) Increase 680 by 10%.

.....

The tiles Meg is going to use are sold in boxes of 50.

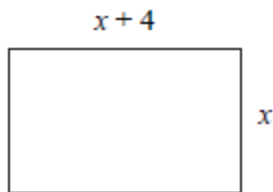
- (ii) Work out the number of boxes of tiles Meg should buy.

.....
(5)

4.

The width of a rectangle is x centimetres.

The length of the rectangle is $(x + 4)$ centimetres.



- (a) Find an expression, in terms of x , for the perimeter of the rectangle.
Give your expression in its simplest form.

.....
(2)

The perimeter of the rectangle is 54 centimetres.

- (b) Work out the length of the rectangle.

..... cm
(3)

5.

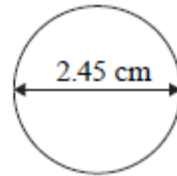
A 10 pence coin is made from copper and nickel.
The ratio of the weight of copper to the weight of nickel is 18:6

(a) Write the ratio 18:6 in its simplest form.

.....
(1)

The diameter of the 10 pence coin is 2.45 cm.

(b) Work out the circumference of the coin.
Give your answer correct to 1 decimal place.



..... cm
(2)

6.

Change 7 m^2 to cm^2 .

..... cm^2

7.

Alistair sells books.

He sells each book for £7.60 plus VAT at $17\frac{1}{2}\%$.

He sells 1650 books.

Work out how much money Alistair receives.

£.....

(Total 4 marks)

8.

(a) Solve $5 - 3x = 2(x + 1)$

$x = \dots\dots\dots$

(3)

(b) $-3 \leq y < 3$

y is an integer.

Write down all the possible values of y .

.....
(2)

9.

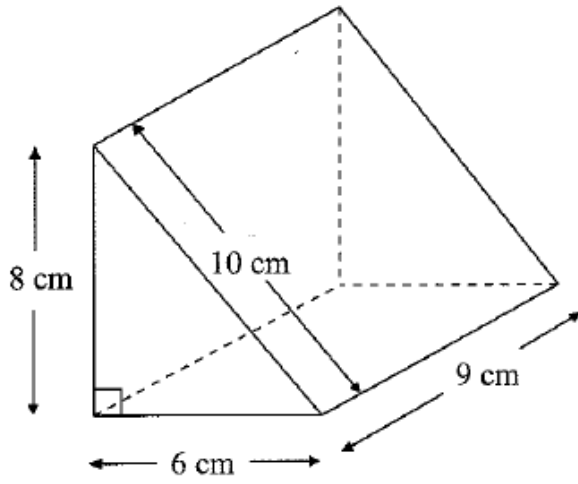


Diagram **NOT**
accurately drawn

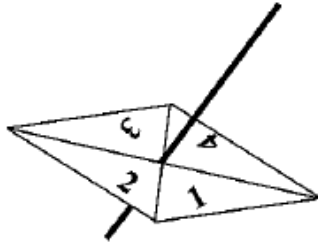
Work out the surface area of the triangular prism.
State the units with your answer.

.....

(Total 4 marks)

10.

Here is a 4-sided spinner.



The sides of the spinner are labelled 1, 2, 3 and 4.

The spinner is biased.

The probability that the spinner will land on each of the numbers 2 and 3 is given in the table.

The probability that the spinner will land on 1 is equal to the probability that it will land on 4.

| | | | | |
|-------------|-----|-----|-----|-----|
| Number | 1 | 2 | 3 | 4 |
| Probability | x | 0.3 | 0.2 | x |

(a) Work out the value of x .

$$x = \dots\dots\dots (2)$$

Sarah is going to spin the spinner 200 times.

(b) Work out an estimate for the number of times it will land on 2.

$$\dots\dots\dots (2)$$

11.

The number 40 can be written as $2^m \times n$, where m and n are prime numbers.

Find the value of m and the value of n .

$m = \dots\dots\dots$

$n = \dots\dots\dots$

12.

The length of a coach is 15 metres.

Jonathan makes a model of the coach.
He uses a scale of 1:24



Work out the length, in centimetres, of the model coach.

$\dots\dots\dots$ cm

(Total 2 marks)

13.

Three women earned a total of £36
They shared the £36 in the ratio 7:3:2

Donna received the largest amount.

(a) Work out the amount Donna received.

£.....
(3)

A year ago, Donna weighed 51.5 kg.
Donna now weighs $8\frac{1}{2}\%$ less.

(b) Work out how much Donna now weighs.
Give your answer to an appropriate degree of accuracy.

..... kg
(4)

14.

(a) Simplify $a^3 \times a^4$

.....
(1)

(b) Simplify $3x^2y \times 5xy^3$

.....
(2)

15.

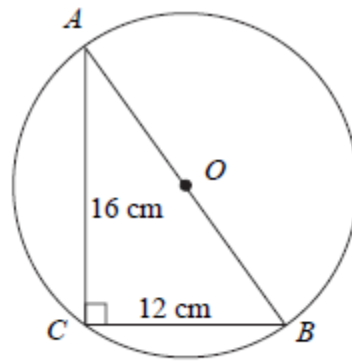


Diagram NOT
accurately drawn

The diagram shows triangle ABC and a circle, centre O .
 A , B and C are points on the circumference of the circle.
 AB is a diameter of the circle.

$AC = 16$ cm and $BC = 12$ cm.

- (a) Angle $ACB = 90^\circ$.
Give a reason why.

..... (1)

- (b) Work out the diameter AB of the circle.

..... cm
(3)

- (c) Work out the area of the circle.
Give your answer correct to 3 significant figures.

..... cm^2
(3)

16.

In a sale, normal prices are reduced by 20%.

Andrew bought a saddle for his horse in the sale.
The sale price of the saddle was £220

Calculate the normal price of the saddle.



£

(Total 3 marks)
