

Revision F3 (Topics 1-5) [41]

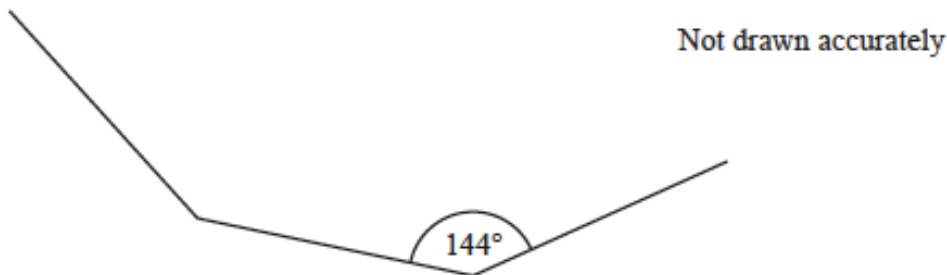
1.

(a) Expand and simplify $7(x - 2y) - 3(2x - y)$ (2)

(b) Solve $\frac{24-x}{5} = 3$ (2)
(Total 4 marks)

2.

The diagram shows part of a regular polygon.
Each interior angle is 144° .



Calculate the size of the exterior angle of the polygon. (Total 2 marks)

3.

Beth has 400 roses.
48 are yellow.

What percentage of the roses are yellow? (Total 2 marks)

4.

Factorise completely the following expressions

(i) $2a^2 + a$ (1)

(ii) $8x^3y^2 - 4xy^3$ (2)
(Total 3 marks)

5.

(a) Simplify

$$4x - 5x + 7x$$

(1)

(b) Simplify

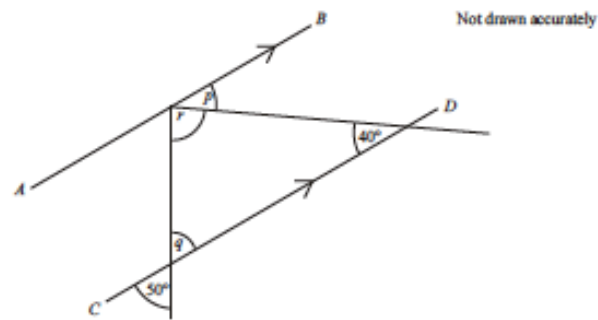
(i) $x^5 \times x^{-2}$ (1)

(ii) $y^5 \div y^{-2}$ (1)

(c) Expand and simplify $(4x - 3)(x + 5)$ (3)
(Total 6 marks)

6.

The lines AB and CD are parallel.



- (a) Write down the value of p
Give a reason for your answer.

(2)

- (b) Write down the value of q .
Give a reason for your answer.

(2)

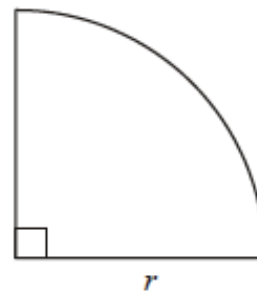
- (c) Work out the value of r .

(2)

(Total 6 marks)

7.

A square of side x and a quarter-circle of radius r have the same area.



Not to scale

Express r in terms of x .
Simplify your answer.

(Total 3 marks)

8.

- (a) Express 60 as a product of its prime factors.
Give your answer in index form.

(3)

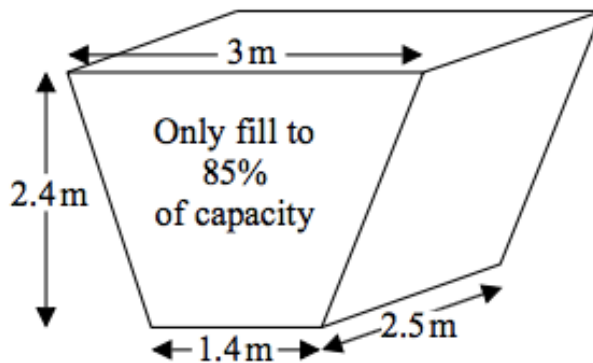
- (b) Find the Highest Common Factor (HCF) of 120 and 32.

(2)

(Total 5 marks)

9.

The diagram shows an oil tank in the shape of a prism.
The cross section of the prism is a trapezium.



The tank is empty.

Oil flows into the tank.

After one minute there are 300 litres of oil in the tank.

Assume that oil continues to flow into the tank at this rate.

- (a) Work out how many **more** minutes it takes for the tank to be 85% full of oil.
($1 \text{ m}^3 = 1000 \text{ litres}$)

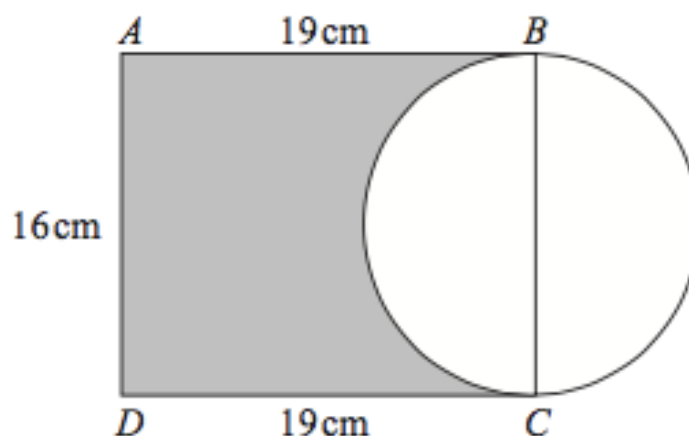
The assumption about the rate of flow of the oil could be wrong.

- (b) Explain how this could affect your answer to part (a).

(Total 6 marks)

10.

Here is a diagram showing a rectangle, $ABCD$, and a circle.



BC is a diameter of the circle.

Calculate the percentage of the area of the rectangle that is shaded.
Give your answer correct to 1 decimal place.

(Total 4 marks)