

Revision A F3 (End of Year Exam) [45]

1.

(i) Multiply out $s(s^2 + 6)$ (2)

(ii) Multiply out and simplify $4(x - 2) + 3(x + 2)$ (2)

(iii) Multiply out and simplify $(n + 3)^2$ (2)
(Total 6 marks)

2.

A special packet of breakfast cereal contains 20% more than a normal packet. The special packet contains 600 g of cereal. How much cereal does the normal packet contain?

(Total 3 marks)

3.

Make x the subject of the formula

$$3x + 2y = 8y - 3$$

Simplify your answer as much as possible.

(Total 3 marks)

4.

Simplify

(a) $c \times c \times c \times c$ (1)

(b) $d^3 \times d^2$ (1)

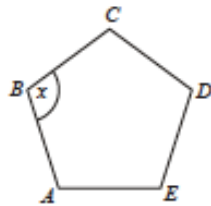
(c) $\frac{e}{e^8}$ (1)

(d) $(f^3)^2$ (1)

(e) $(2g^2h^4) \times (3g^3h)$ (2)
(Total 6 marks)

5.

(a) $ABCDE$ is a regular pentagon.

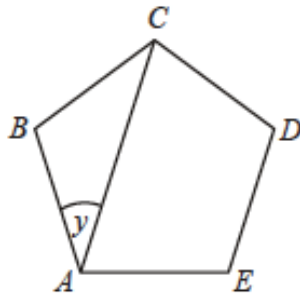


Not drawn accurately

Work out the value of the interior angle x .

(2)

(b) $ABCDE$ is a regular pentagon.



Not drawn accurately

Work out the value of y .

(2)

(Total 4 marks)

6.

The number 9702 can be written as $2 \times 3^2 \times 7^2 \times 11$.

(a) Here are some of the factors of 9702.

1 2 3 6 7 11 77 126 882 1386 1617 3234 4851 9702

Find two more factors of 9702.

(b) Find the highest common factor (HCF) of 210 and 9702.

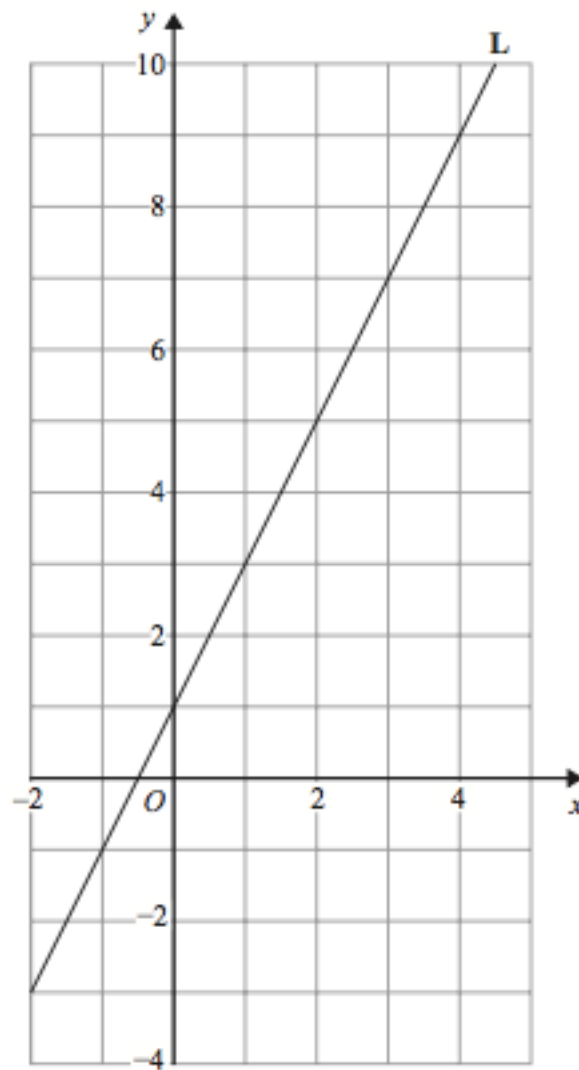
(c) Gwen says that 45 is **not** a factor of 9702.

Explain how you know that she is correct.

(Total 6 marks)

7.

Line **L** is drawn on the grid below.



Find the equation for the straight line **L**.

Give your answer in the form $y = mx + c$

(Total 3 marks)

8.

An internet auction site has two identical cars for sale.

Both cars are priced at £10 000.

The price of each car is to be reduced each week until they are sold.

The first car is reduced by 10% each week.

The second car is reduced by £800 each week.

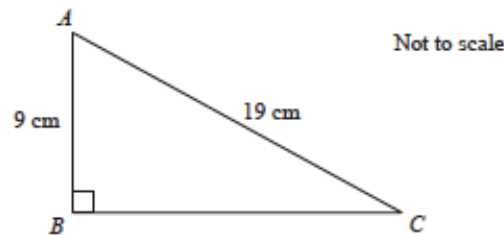
Assuming that no-one buys the cars, after how many weeks will the second car be cheaper than the first?

You **must** show all your working.

(Total 4 marks)

9.

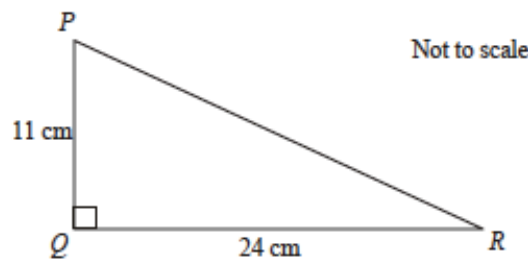
- (a) ABC is a right-angled triangle.
 $AC = 19$ cm and $AB = 9$ cm.



Calculate the length of BC .

(3)

- (b) PQR is a right-angled triangle.
 $PQ = 11$ cm and $QR = 24$ cm.



Calculate the size of angle PRQ .

(3)

(Total 6 marks)

10.

A sculptor needs to lift a piece of marble.
It is a cuboid with dimensions 1 m by 0.5 m by 0.2 m.
Marble has a density of 2.7 g/cm³.
The sculptor's lifting gear can lift a maximum load of 300 kg.

Can the lifting gear be used to lift the marble?
Justify your decision.

(Total 4 marks)