

Revision F4 (Topics 11-13) [41]

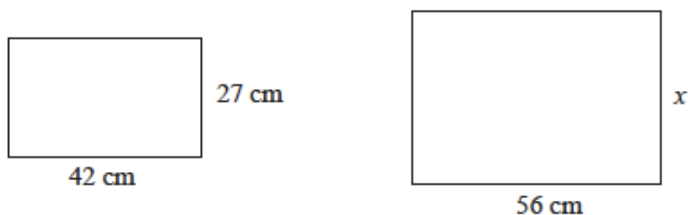
1.

(a) Which of these statements are correct?

- P all isosceles triangles are similar
- Q all squares are similar
- R all parallelograms are similar
- S all regular pentagons are similar

(2)

(b) These two rectangles are similar.



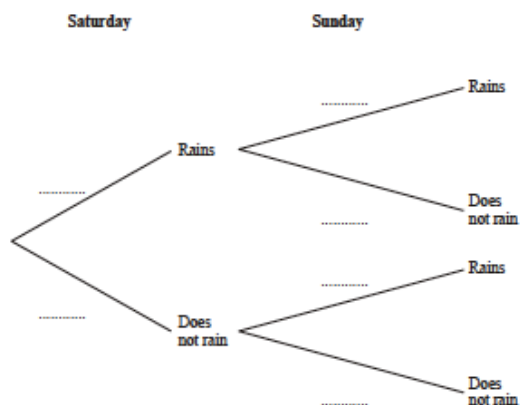
Calculate the value of x .

(3)
(Total 5 marks)

2.

The probability that it rains on any day in June is 0.3
The tree diagram represents a Saturday and a Sunday in June.

(a) Fill in the probabilities on the tree diagram.



(2)

(b) Calculate the probability that it rains on only one of these days.

(3)
(Total 5 marks)

3.

(a) Solve the equation $8 + 2z = 3(2 - z)$

(3)

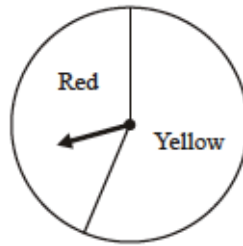
(b) Solve the simultaneous equations.
Do **not** use a trial and improvement method.
You **must** show all your working.

$$\begin{aligned} 5x + 2y &= 4 \\ 4x - 3y &= 17 \end{aligned}$$

(4)
(Total 7 marks)

4.

A spinner has a red sector (R) and a yellow sector (Y).



The arrow is spun 1000 times.

The table shows the relative frequency of a red after different numbers of spins.

Number of spins	Relative frequency of a red
50	0.42
100	0.36
200	0.34
500	0.3
1000	0.32

(a) How many times was a red obtained after 200 spins?

(2)

(b) Which relative frequency gives the best estimate of the probability of a red?
Explain your answer.

(2)

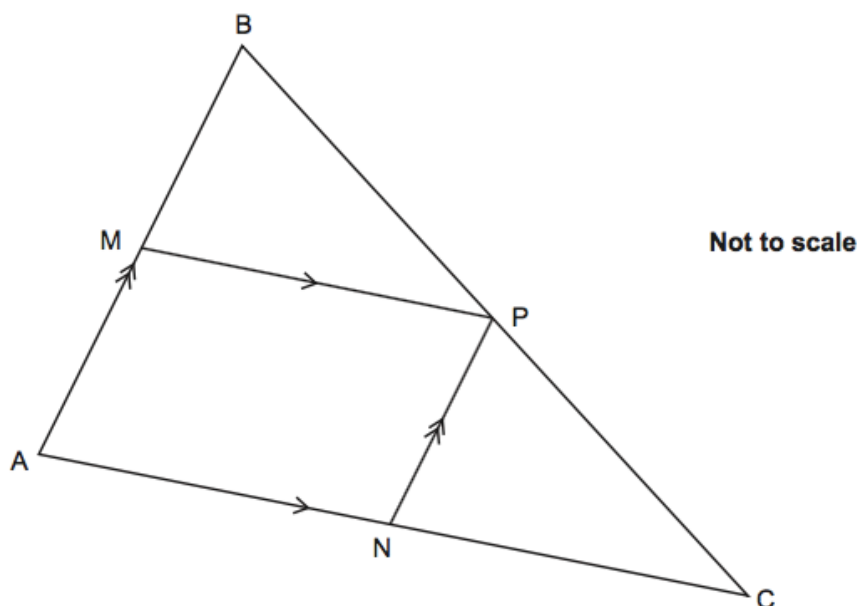
(Total 4 marks)

5.

In the diagram, P is the midpoint of BC.

MP is parallel to AC.

NP is parallel to AB.



Prove that triangle MBP is congruent to triangle NPC.

[4]

6.

Mick is a striker for his local football team.

The probabilities of Mick scoring 0, 1, 2 or 3 goals in any game are shown in the table.

Number of goals	0	1	2	3
Probability	0.4	0.3	0.2	0.1

Mick's performance in any game is independent of any other game.

(a) Calculate the probability that Mick scores in each of three consecutive games.

(2)

(b) Calculate the probability that Mick scores a total of 8 or more goals in three consecutive games.

(3)

(Total 5 marks)

7.

A bag contains counters that are red, blue, green or yellow.

	red	blue	green	yellow
Number of counters	9	$3x$	$x - 5$	$2x$

A counter is chosen at random.

The probability it is **red** is $\frac{9}{100}$

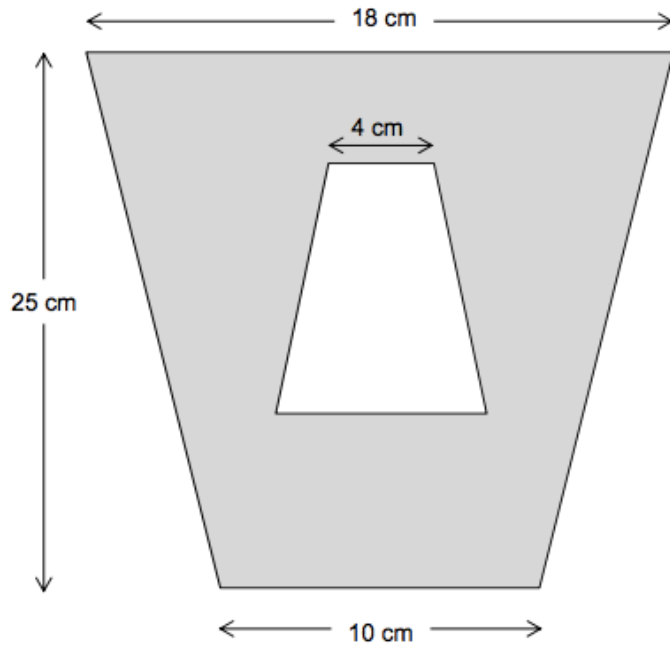
Work out the probability it is green.

[4 marks]

8.

- (a) A pattern is made from two **similar** trapeziums.

Not drawn accurately

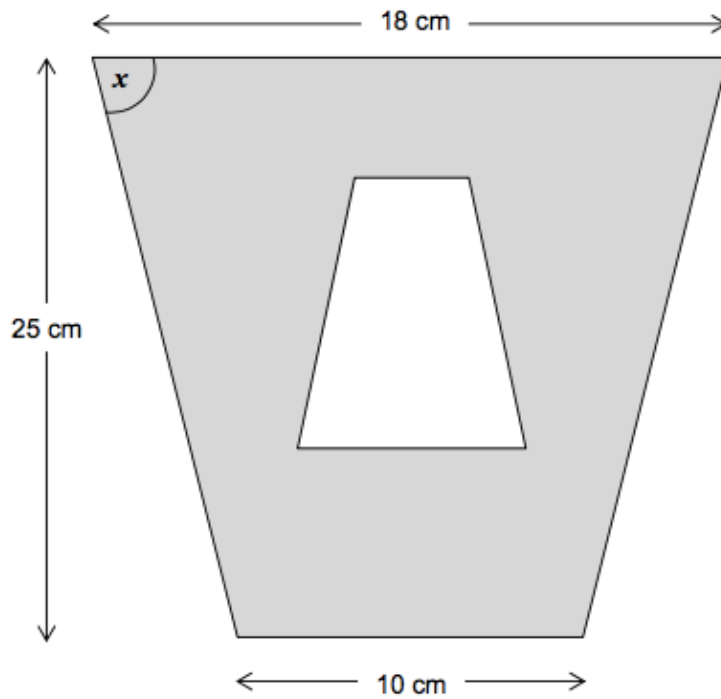


Show that the shaded area is 294 cm^2

[4 marks]

- (b) The pattern has one line of symmetry.

Not drawn accurately



Work out the size of angle x .

[3 marks]