









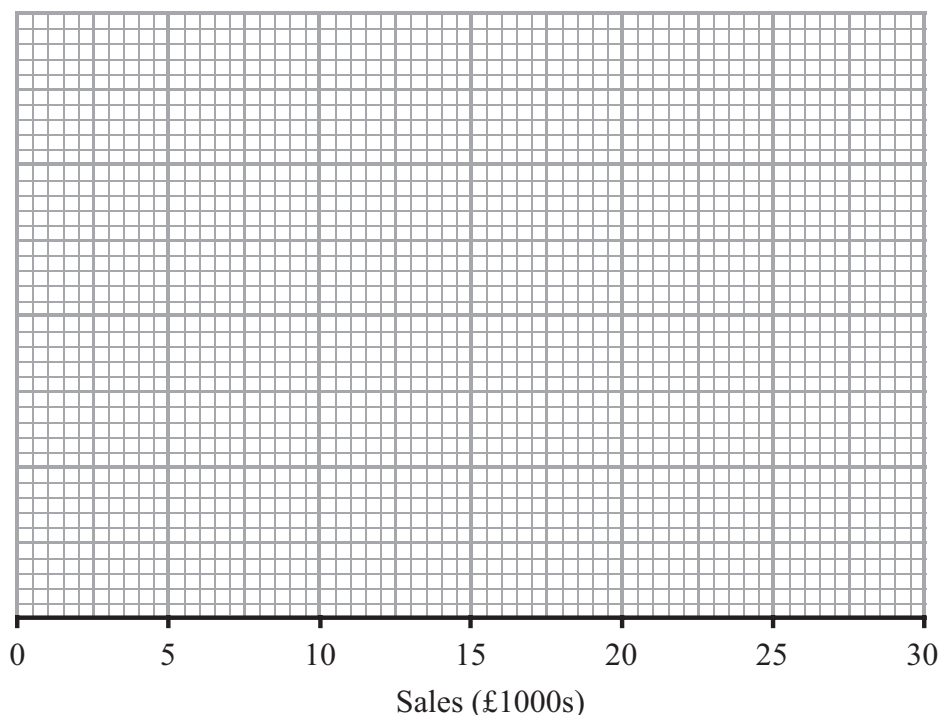


3. Over a long period of time a small company recorded the amount it received in sales per month. The results are summarised below.

	Amount received in sales (£1000s)
Two lowest values	3, 4
Lower quartile	7
Median	12
Upper quartile	14
Two highest values	20, 25

An outlier is an observation that falls either  $1.5 \times$  interquartile range above the upper quartile or  $1.5 \times$  interquartile range below the lower quartile.

- (a) On the graph paper below, draw a box plot to represent these data, indicating clearly any outliers. (5)



- (b) State the skewness of the distribution of the amount of sales received. Justify your answer. (2)
- (c) The company claims that for 75% of the months, the amount received per month is greater than £10 000. Comment on this claim, giving a reason for your answer. (2)





















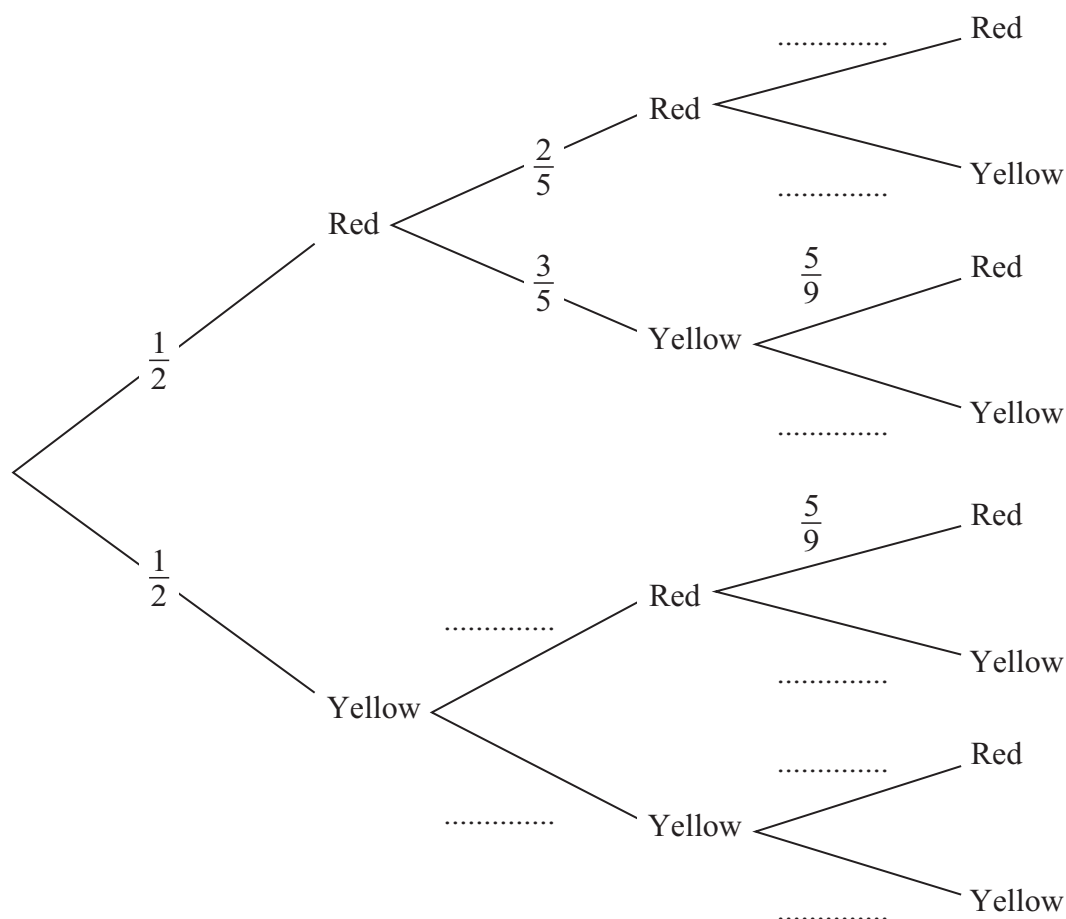


7. The bag  $P$  contains 6 balls of which 3 are red and 3 are yellow.  
 The bag  $Q$  contains 7 balls of which 4 are red and 3 are yellow.  
 A ball is drawn at random from bag  $P$  and placed in bag  $Q$ . A second ball is drawn at random from bag  $P$  and placed in bag  $Q$ .  
 A third ball is then drawn at random from the 9 balls in bag  $Q$ .

The event  $A$  occurs when the 2 balls drawn from bag  $P$  are of the same colour.  
 The event  $B$  occurs when the ball drawn from bag  $Q$  is red.

- (a) Complete the tree diagram shown below.

(4)



- (b) Find  $P(A)$

(3)

- (c) Show that  $P(B) = \frac{5}{9}$

(3)

- (d) Show that  $P(A \cap B) = \frac{2}{9}$

(2)

- (e) Hence find  $P(A \cup B)$

(2)

- (f) Given that all three balls drawn are the same colour, find the probability that they are all red.

(3)



















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