

10 Solve

$$\begin{aligned} 3x + 2y &= 15 \\ 10x - 4y &= 2 \end{aligned}$$

Show clear algebraic working.

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total for Question 10 is 3 marks)

11 Change a speed of 72 kilometres per hour to a speed in metres per second.

..... metres per second

(Total for Question 11 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



12 A company makes cars.

In 2016, the company made 350 cars.

In the first 6 months of 2017, the company made 25 cars each month.

In the last 6 months of 2017, the company made 45 cars each month.

(a) Work out the percentage increase in the number of cars the company made from 2016 to 2017

..... %

(4)

The company's income in 2017 was \$500 000 more than the company's income in 2016

The company's income in 2017 was 8% more than the company's income in 2016

(b) Work out the company's income in 2016

\$.....

(3)

(Total for Question 12 is 7 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



13 Each month Edna spends all her income on rent, on travel and on other living expenses.

She spends $\frac{1}{3}$ of her income on rent.

She spends $\frac{1}{5}$ of her income on travel.

She spends \$420 of her income on other living expenses.

Work out her income each month.

\$.....

(Total for Question 13 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



14 (a) Simplify $(2e^2 f^3)^3$

.....
(2)

(b) Expand and simplify $(3x - 4y)(x + 3y)$

.....
(2)

$\frac{\sqrt{a} \times a}{a^{-2}}$ can be written in the form a^k

(c) Find the value of k .

$k =$
(2)

(d) Simplify $\frac{2^n - 1}{4^n - 1}$

.....
(2)

(Total for Question 14 is 8 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



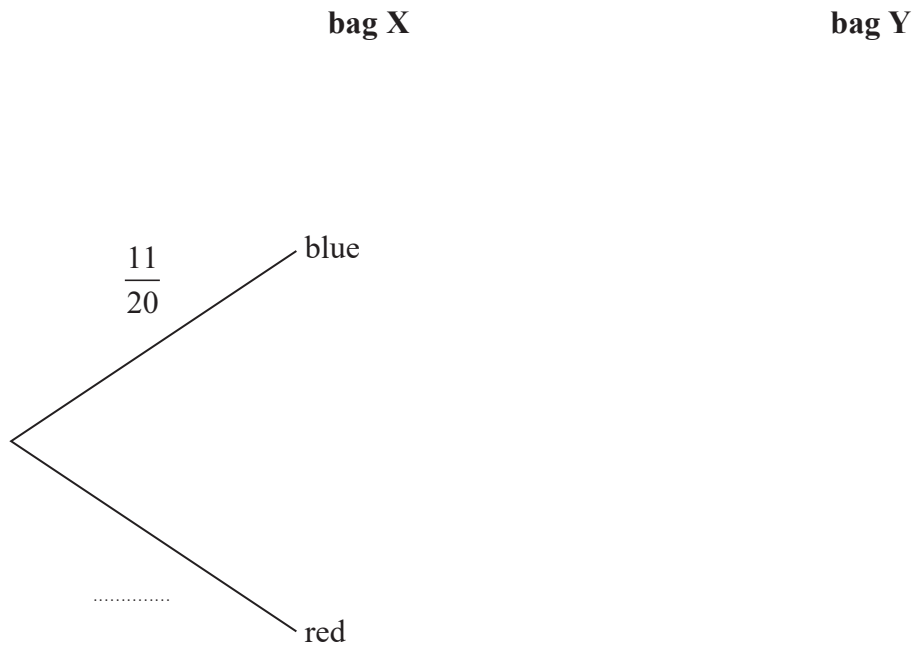
15 There are two bags of counters, bag X and bag Y.

There are 20 counters in bag X.
11 of the counters are blue and the rest are red.

There are 16 counters in bag Y.
9 of the counters are blue and the rest are red.

Arkady takes at random a counter from bag X and takes at random a counter from bag Y.

(a) Complete the probability tree diagram.



(3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



(b) Work out the probability that the two counters are both red.

.....
(2)

(c) Work out the probability that the two counters are both red or are both blue.

.....
(3)

(Total for Question 15 is 8 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



16

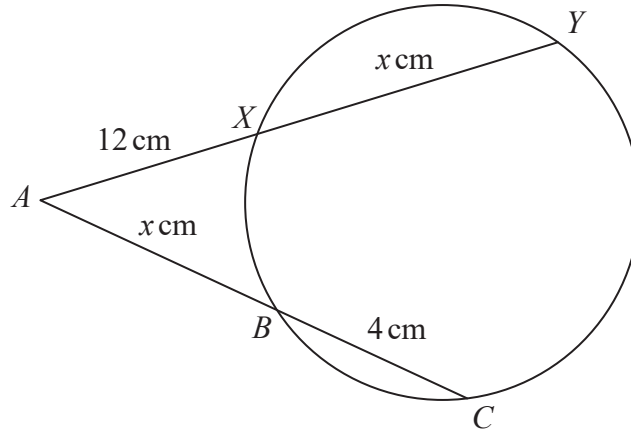


Diagram **NOT** accurately drawn

The points B, C, Y and X lie on a circle.

AXY and ABC are straight lines.

$AX = 12 \text{ cm}$ $XY = x \text{ cm}$ $AB = x \text{ cm}$ $BC = 4 \text{ cm}$

(a) Show that $x^2 - 8x - 144 = 0$

(3)

(b) Find the length of AC .

Show your working clearly.

Give your answer correct to 3 significant figures.

..... cm

(4)

(Total for Question 16 is 7 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

