Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Tuesday 6 November 2018

Morning (Time: 1 hour 30 minutes) | Paper Reference **1MA1/1F**

Mathematics

Paper 1 (Non-Calculator)
Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used**.

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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6/7/7/7/7/7/1/

P 5 5 5 8 3 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write the following numbers in order of size.
Start with the smallest number.

0.4 0.02 0.37 0.152 0.2

0.02, 0.152, 0.2, 0.37, 0.4

(Total for Question 1 is 1 mark)

2 Write 0.6 as a percentage.

60 %

(Total for Question 2 is 1 mark)

3 Here is a list of numbers.

3 5 7 12 15 18 20

From the list, write down a factor of 10

5

(Total for Question 3 is 1 mark)

4 Write 7829 to the nearest 1000

8000

(Total for Question 4 is 1 mark)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

5 (a) Work out $(3 \times 5) + 7$

15 + 7 = 22

22

(1)

(b) Work out 2^3

2 + 2 + 2

8

(1)

(c) Write brackets ( ) in this statement to make it correct.

$7 \times 2 + 3 = 35$

$7 \times (2 + 3) = 35$

(1)

(Total for Question 5 is 3 marks)

6 Sue has 2 cats.

Each cat eats $\frac{1}{4}$ of a tin of cat food each day.

$\frac{1}{2}$ tin per day

Sue buys 8 tins of cat food.

Has Sue bought enough cat food to feed her 2 cats for 14 days?
You must show how you get your answer.

$8 \div \frac{1}{2} = 16$

No - she has enough for 16 days

(Total for Question 6 is 3 marks)

7 There are only apple trees, cherry trees, pear trees and plum trees in an orchard.

The pictogram shows information about the numbers of apple trees, cherry trees and pear trees in the orchard.

Apple	□ □ □ 12
Cherry	□ □ 5
Pear	□ □ 6
Plum	□ □

Key:

□ represents 4 trees

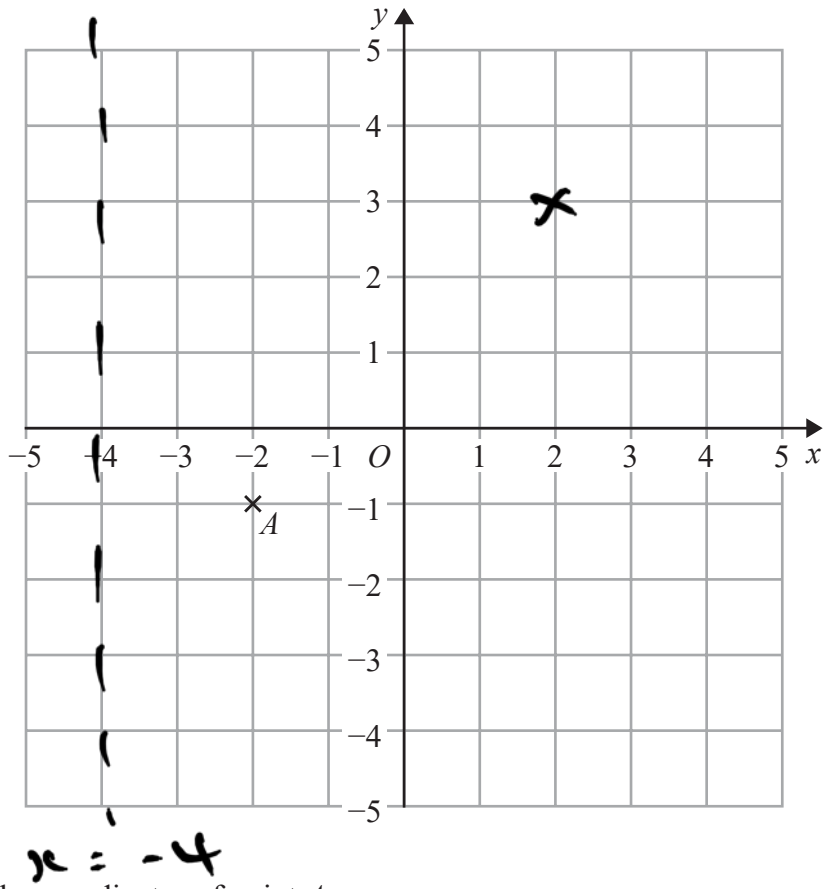
17 + 6 = 23

There is a total of 30 trees in the orchard.

Complete the pictogram.

(Total for Question 7 is 3 marks)

8



x = −4

(a) Write down the coordinates of point A.

(−2 , −1)

(1)

(b) On the grid, mark with a cross (×) the point (2, 3)
Label this point B.

(1)

(c) On the grid, draw the line with equation $x = -4$

(1)

(Total for Question 8 is 3 marks)

9 $g = 9$
$h = 4$

Work out the value of $2g + 3h$

$2(9) + 3(4)$

$18 + 12$

30

30

(Total for Question 9 is 2 marks)

10 Write down two prime numbers that have a sum of 32

1, 3, 5, 7, 11, 13, 17, 19

13 & 19

(Total for Question 10 is 2 marks)

11 Here are some fractions.

$$\frac{9}{12} \qquad \frac{6}{8} \qquad \frac{18}{24} \qquad \frac{10}{16} \qquad \frac{15}{20}$$

One of these fractions is **not** equivalent to $\frac{3}{4}$

(a) Which fraction?

$\frac{9}{12} \div 3 = \frac{3}{4}$

$\frac{6}{8} \div 2 = \frac{3}{4}$

$\frac{18}{24} \div 6 = \frac{3}{4}$

$\frac{10}{16} \div 2 = \frac{5}{8}$

$\frac{10}{16}$

(1)

(b) Work out $\frac{1}{12} + \frac{5}{6}$

$\frac{1}{12} + \frac{10}{12} = \frac{11}{12}$

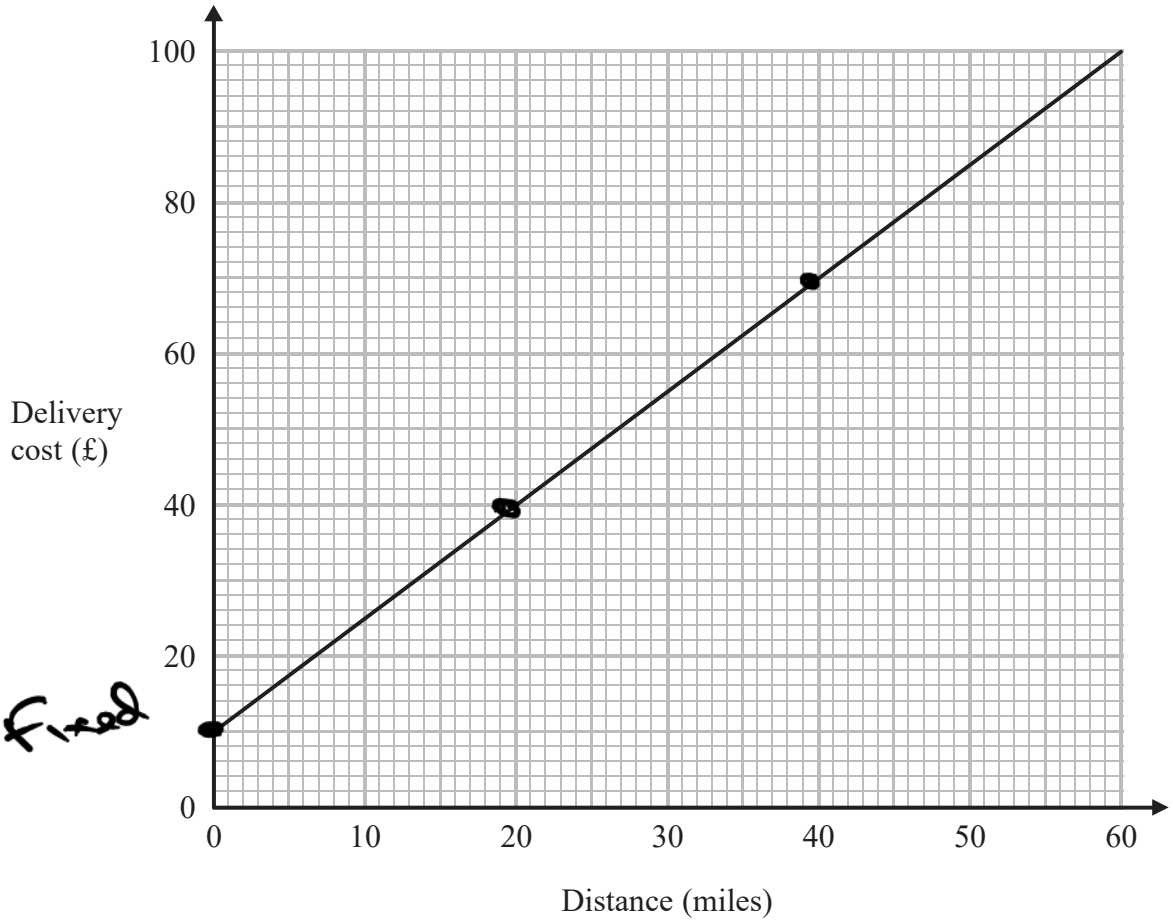
$\frac{11}{12}$

(2)

(Total for Question 11 is 3 marks)

12 Tom uses his lorry to deliver bricks.

You can use this graph to find the delivery cost for different distances.



For each delivery, there is a fixed charge plus a charge for the distance.

(a) How much is the fixed charge?

£ 10

(1)

Tom makes two deliveries of bricks.
The distance of one delivery is 20 miles more than the distance of the other delivery.

(b) Work out the difference between the two delivery costs.

20 miles costs £40

40 miles costs £70

£ 30

(2)

(Total for Question 12 is 3 marks)

13 Azmol, Ryan and Kim each played a game.

Azmol's score was four times Ryan's score.
Kim's score was half of Azmol's score.

Write down the ratio of Azmol's score to Ryan's score to Kim's score.

A R K

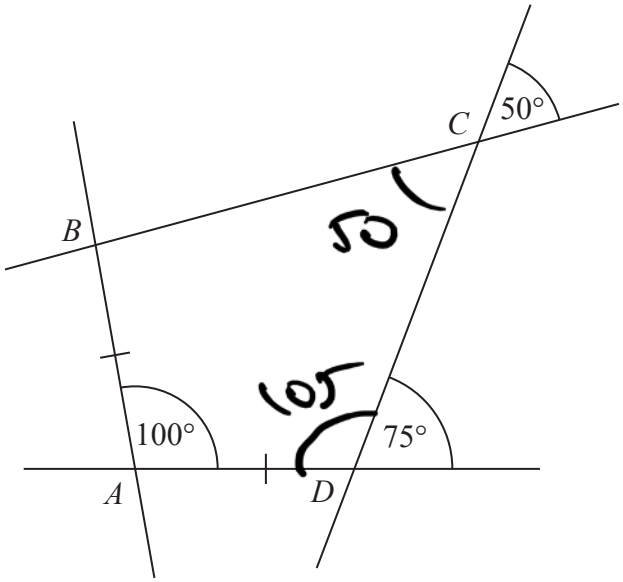
4x x 2x

4 : 1 : 2

4 : 1 : 2

(Total for Question 13 is 2 marks)

14 The diagram shows quadrilateral *ABCD* with each of its sides extended.



$AB = AD$

Show that *ABCD* is a kite.
Give a reason for each stage of your working.

$\angle BCD = 50°$ Ar opposite

$\angle ADC = 105°$ Angle on a straight line add to 180°

$\angle ABC$ must be 105° if ABCD is a kite.

$360 - 100 + 105 - 50 = 105°$ angles in a quadrilateral add to 360°

$\therefore ABCD$ is a kite.

(Total for Question 14 is 4 marks)

15 Shahid is going to use these instructions to make a fizzy drink.

Mix 5 parts of orange juice with 2 parts of lemonade

Shahid thinks that he has 300 m*l* of orange juice and 200 m*l* of lemonade.

(a) If Shahid is correct, what is the greatest amount of fizzy drink he can make?

OJ : Lemonade

×60 (5 : 2) ×60

If 300 : 120 ×100 = 420ml

If 280 : 200 = 780ml.

NOT ENOUGH

420 ml

(3)

Shahid has 300 m*l* of orange juice but he only has 160 m*l* of lemonade.

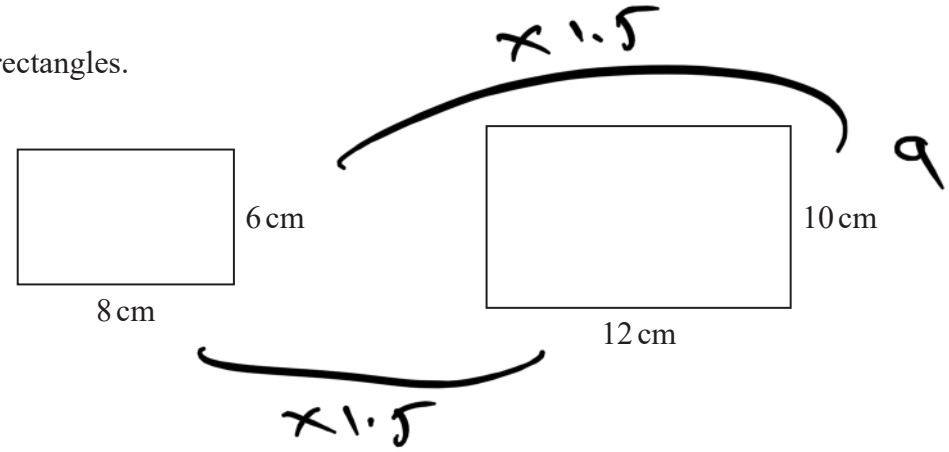
(b) Does this affect the greatest amount of fizzy drink he can make?
Give a reason for your answer.

Yes - he only needs 120ml of lemonade to make 420ml of fizzy drink

(1)

(Total for Question 15 is 4 marks)

16 Here are two rectangles.



Jim says,

"The two rectangles are similar because $8 + 4 = 12$ and $6 + 4 = 10$"

Is Jim correct?
Explain your answer.

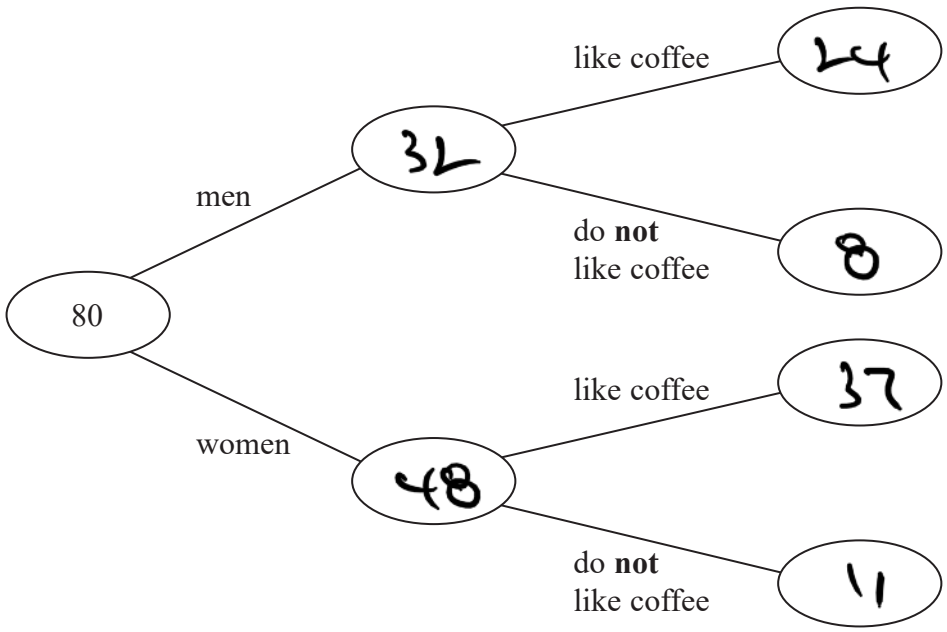
No - Scale Factor is 1.5 so length is OK (12cm) but not width - should be 9cm

(Total for Question 16 is 1 mark)

17 80 people are asked if they like coffee.

48 of these people are women.
61 of the 80 people like coffee.
8 of the men do **not** like coffee.

(a) Use this information to complete the frequency tree.



(3)

One of the people who like coffee is chosen at random.

(b) Find the probability that this person is a woman.

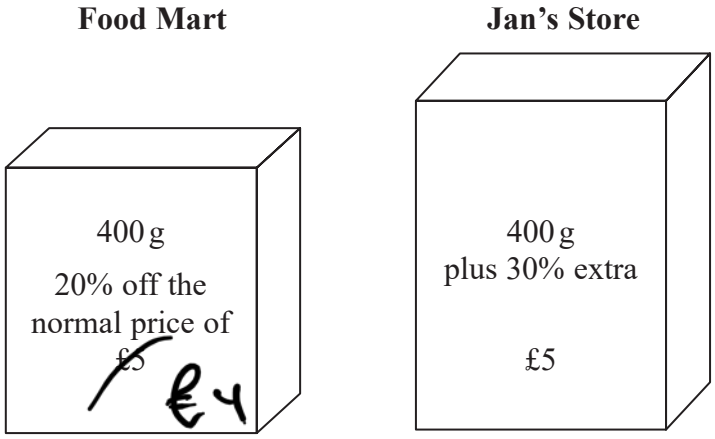
$\frac{37}{61}$

(2)

(Total for Question 17 is 5 marks)

18 Food Mart and Jan's Store sell boxes of the same type of breakfast cereal.

Each shop has a special offer.



Which box of cereal is the better value for money?
You must show your working.

Food Mart. 500 − 20% = 400 (€4)

∴ 100g = €1

Jan's Store.

400 + 30% = 520 g (€5)

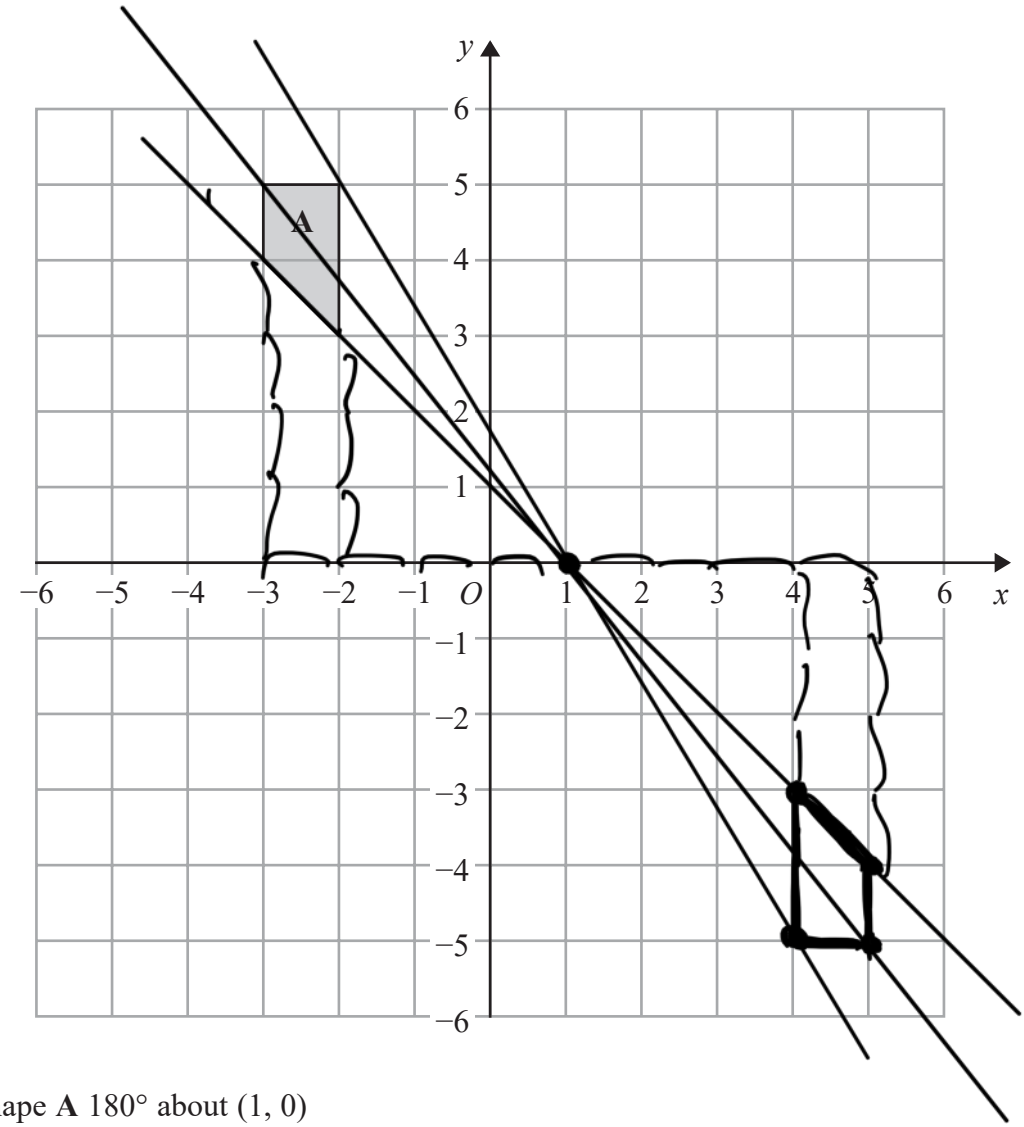
$5\overline{)520}$ 104

= €1.04.

Food Mart is cheaper.

(Total for Question 18 is 4 marks)

19



Rotate shape **A** 180° about (1, 0)

(Total for Question 19 is 2 marks)

20 Work out the value of $\dfrac{3^7 \times 3^{-2}}{3^3}$

$\dfrac{3^5}{3^1} = 3^4 = 9$.

.....

(Total for Question 20 is 2 marks)

21 $v^2 = u^2 + 2as$

$u = 12 \quad a = -3 \quad s = 18$

(a) Work out a value of v.

$v^2 = u^2 + 2as$

$= (12)^2 + 2(-3)(18)$

$= 144 - 108$

$v^2 = 36$

$v = \sqrt{36}$

6 or -6

.....

(2)

(b) Make s the subject of $v^2 = u^2 + 2as$

$v^2 - u^2 = 2as$

$\dfrac{v^2 - u^2}{2a} = s$

$s = \dfrac{v^2 - u^2}{2a}$

.....

(2)

(Total for Question 21 is 4 marks)

22 A bonus of £2100 is shared by 10 people who work for a company.
40% of the bonus is shared equally between 3 managers.
The rest of the bonus is shared equally between 7 salesmen.

One of the salesmen says,

"If the bonus is shared equally between all 10 people I will get 25% more money."

Is the salesman correct?
You must show how you get your answer.

60% £2100

10% £2100 = 210
60% " " = 1260

210 × 6 = 1260

Salesman

1260 ÷ 7 = 180

If shared

2100 ÷ 10

£180
£210
} £30

Statement

£180 + 25%

10% £180 = 18
20% £180 = 36
5% " " = 9
£45

Not correct
only £30
not £45

(Total for Question 22 is 5 marks)

23 It would take 120 minutes to fill a swimming pool using water from 5 taps.

(a) How many minutes will it take to fill the pool if only 3 of the taps are used?

1 tap $120 \times 5 = 600$ min

3 taps $3\overline{)600}$ (200) $= 200$ min

200 minutes

(2)

(b) State one assumption you made in working out your answer to part (a).

All taps flow at same rate

(1)

(Total for Question 23 is 3 marks)

24 A plane travels at a speed of 213 miles per hour. 200 mph

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

200 miles = 1 hour

200 miles = 60 minutes

200 miles = 3600 secs

2 miles = 36 secs

1 mile = 18 secs

18 seconds

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

overestimate - rounded down to 200 from 213 mph

(1)

(Total for Question 24 is 4 marks)

25 Solve the simultaneous equations

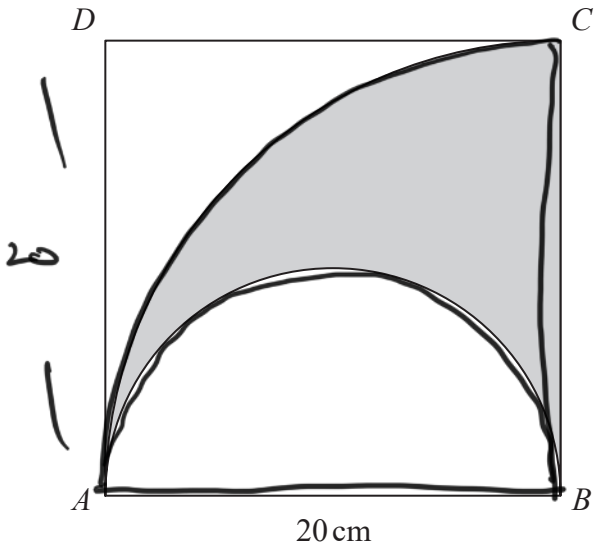
$5x + y = 21$
$x - 3y = 9$ (+5)

$x = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$

$y = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$

(Total for Question 25 is 3 marks)

26 The diagram shows a square $ABCD$ with sides of length 20 cm.
It also shows a semicircle and an arc of a circle.



AB is the diameter of the semicircle.
AC is an arc of a circle with centre B.

Show that $\dfrac{\text{area of shaded region}}{\text{area of square}} = \dfrac{\pi}{8}$

$20 \times 20 = 400\text{cm}^2$

Area $\frac{1}{4}$ circle (radius) $= \frac{1}{4}\pi r^2$

$= \frac{1}{4}(\pi 20^2) = \frac{1}{4}(\pi \times 400)$

$= 100\pi$

Area semi circle $= \frac{1}{2}\pi r^2$

$= \frac{1}{2}(\pi 10^2) = \frac{1}{2}(\pi \times 100)$

$= 50\pi$

Shaded region / Area of square $= \dfrac{100\pi - 50\pi}{400} = \dfrac{50\pi}{400} = \dfrac{\pi}{8}$

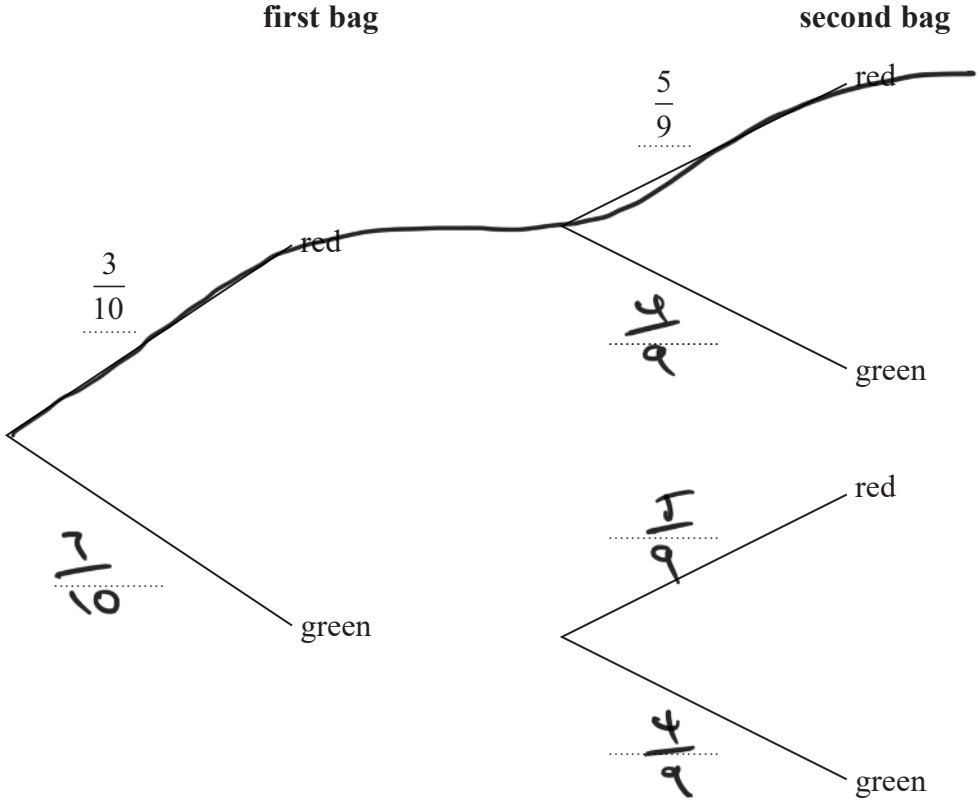
(Total for Question 26 is 4 marks)

27 Amina has two bags.

In the first bag there are 3 red balls and 7 green balls.
In the second bag there are 5 red balls and 4 green balls.

Amina takes at random a ball from the first bag.
She then takes at random a ball from the second bag.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Amina takes two red balls.

$\frac{3}{10} \times \frac{5}{9} = \frac{15}{90} = \frac{1}{6}$ RR

$\frac{1}{6}$

(2)

(Total for Question 27 is 4 marks)

28 The size of each interior angle of a regular polygon is 11 times the size of each exterior angle.

Work out how many sides the polygon has.

$x + 11x = 180$

$12x = 180$

$x = \frac{180}{12} = \frac{90}{6} = \frac{45}{3} = 15$

Ext. angle $= 15°$ ← add add to $360°$

$\therefore \frac{360}{15} = \frac{120}{5} = 24$ sides.

.....

(Total for Question 28 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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