Write your name here

Surname		Other names	

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

Centre Number

Candidate Number

Mathematics
Paper 1 (Non-Calculator)

Foundation Tier

Mock Set 1 – Autumn 2016
Time: 1 hour 30 minutes

Paper Reference
1MA1/1F

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.*
- **Calculators may not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

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.

Answer ALL questions.

Write your answers in the spaces provided.

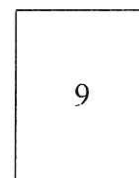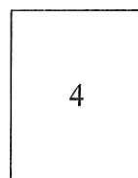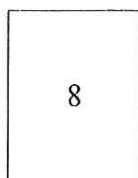**You must write down all the stages in your working.**

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

$$4 \quad -4 \quad 1 \quad 0 \quad -2$$

..... -4, -2, 0, 1, 4 .....

(Total for Question 1 is 1 mark)

2 Here are four cards.
   There is a number on each card.

   | 7 | | 8 | | 4 | | 9 |
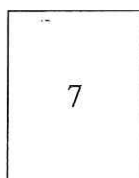
   (a) Write down the largest 4-digit number that can be made using each card only once.

   ..... 98 74 .....

   Students didn't read
   ↓ the question properly   **(1)**

   (b) Write down the smallest 4-digit even number that can be made using each card only once.

   ..... 4798 .....

   (1)

   (Total for Question 2 is 2 marks)

3 Write $\dfrac{7}{20}$ as a percentage.

   $$\dfrac{7}{20} \xrightarrow{\times 5} \dfrac{35}{100} \xleftarrow{\times 5} = 35\%$$

   ..... 35 ..... %

   Percentage is out of 100

   (Total for Question 3 is 1 mark)

of not OFF!

4 Work out 20% of £54.

$$10\% = £5.40$$
$$+ \; 10\% = £5.40$$
$$\overline{}$$
$$20\% = £10.80$$

£ ......10.80......

(Total for Question 4 is 2 marks)

5

x . y
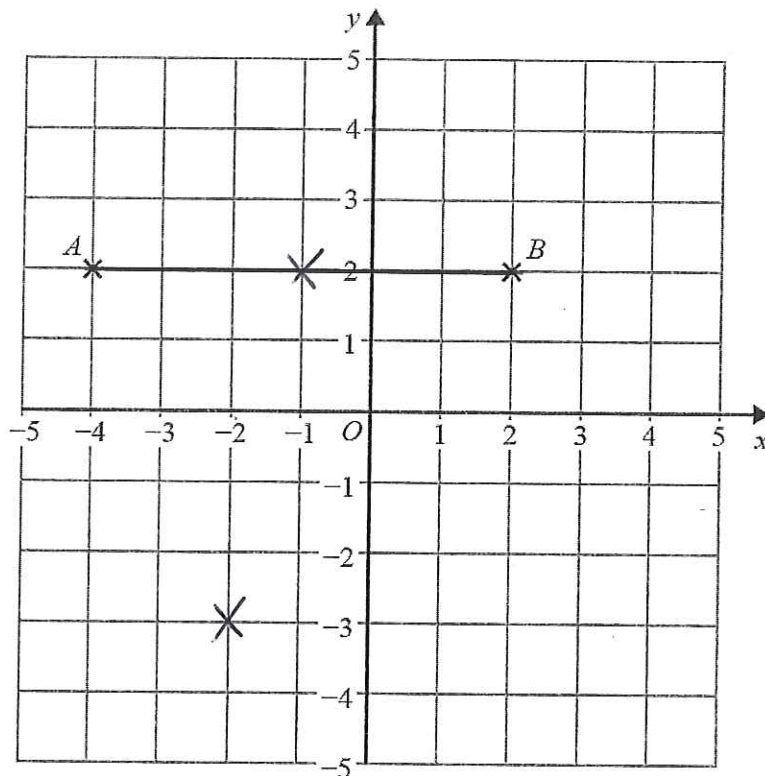
(a) On the grid, mark with a cross (✗) the point (−2, −3).
Label the point *C*.

(1)

(b) Write down the coordinates of the midpoint of *AB*.

Join the points and find the half way point

(......−1...... , ...2......)

(1)

(Total for Question 5 is 2 marks)

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6

pen	32p
pencil	8p
ruler	17p

Rosie has £15 to spend on pens and pencils.

She has to buy the same number of pens as pencils.

What is the greatest number of pens she can buy?

Pen → £0.32 ① Pen → £0.32
Pencil → £0.08 Pencil → £0.08
Ruler → £0.17 ─────────
              £0.40

② ×10 (£15 ÷ £0.40) ×10

150 ÷ 4

  3 7 . 5
4)1 15³0 .²0

③ 37 pens.

............37............

(Total for Question 6 is 3 marks)

7 Here are the ages of 16 men.

28   30   40   37   35   31   29   39

34   33   35   28   40   29   27   35

(*a*) Complete the table to show this information.

Age	Tally	Frequency
27–29	IIII	5
30–32	II	2
33–35	IIII	5
36–38	I	1
39–41	III	3

(2)

(*b*) On the grid, draw a suitable diagram or chart for the information in the table.
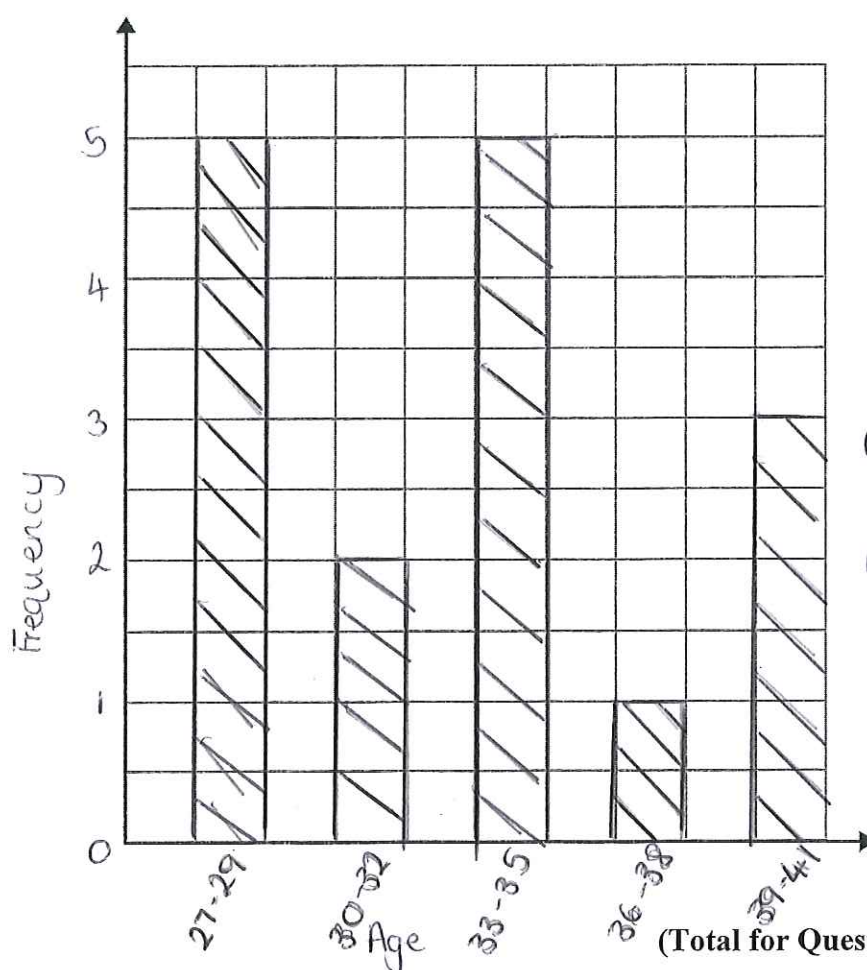
① Correct labelled axes

② Gaps between the bars

③ Bars ⇒ equal width.

(3)

(Total for Question 7 is 5 marks)

8 The stem and leaf diagram shows information about the heights, in cm, of the boys in a class.

14	0̸	2̸	9̸			
15	1̸	1̸	3̸	5̸	7̸	
16	2̸	4̸	⑤	7̸	8̸	9̸
17	6̸	6̸	7̸	9̸		
18	0̸	0̸	1̸			

Key: 15 | 1   represents 151 cm

↑

Read the key correctly

$16 | 5 = 165$

(*a*) Find the median height.

Range → 181 − 140 = 41cm.

........................165........................ cm

(1)

The girls in the class have a median height of 162 cm.
Their heights have a range of 45 cm. → *Work out the range for boys*

(*b*) Compare the distribution of the heights of the boys with the distribution of the heights of the girls.

1.) The boys have a higher median height than girls.
Boys have a median height of 165cm and girls 162cm.
2.) Boys have a smaller range of 41cm which means
the data is less spread and more consistant.

(2)

(Total for Question 8 is 3 marks)

9 The formulae below can be used to work out the cost, £C, of a taxi journey of x miles with three different taxi companies.

| Reliable Taxis	Speedy Taxis	City Taxis
$C = 1.5x$	$C = 1.1x + 11.5$	$C = 1.25x + 8$

Which is the cheapest company to use for a taxi journey of 30 miles?
You must show how you get your answer.

Reliable Taxis	Speedy Taxis	City Taxis
$C = 1.5 \times 30$ $= £45$	$C = 1.1 \times (30) + 11.5$ $= £33 + 11.50$ $\begin{array}{r} £33.00 \\ + £11.50 \\ \hline £44.50 \end{array}$ $\boxed{= £44.50}$ Speedy Taxis is the cheapest company to use	$C = 1.25 \times (30) + 8$ $= £37.50 + 8$ $= £37.50$ $\begin{array}{r} £37.50 \\ + £8.00 \\ \hline £45.50 \end{array}$ $= £45.50$

(Total for Question 9 is 3 marks)
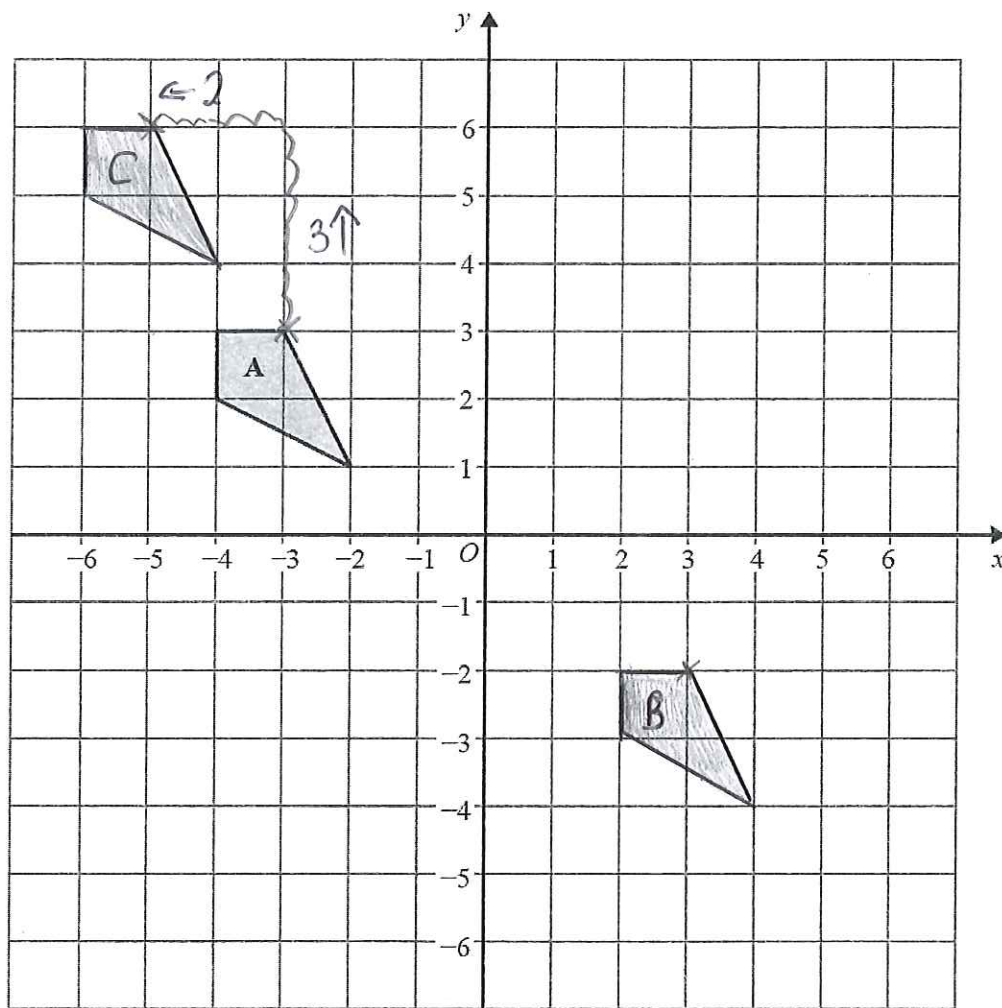
(a) On the grid, translate shape **A** by the vector $\begin{pmatrix} 6 \\ -5 \end{pmatrix}$ $\begin{pmatrix} +x \\ +y \end{pmatrix}$ Right Up $\begin{pmatrix} -x \\ -y \end{pmatrix}$ left Down .

Label the new shape **B**. $6 \rightarrow$ $5 \downarrow$

(1)

(b) On the grid, translate shape **B** by the vector $\begin{pmatrix} -8 \\ 8 \end{pmatrix}$ $8 \leftarrow$ $8 \uparrow$

Label the new shape **C**.

(1)

(c) Write down the column vector for the translation that maps shape **A** onto shape **C**.

$\begin{pmatrix} x \\ y \end{pmatrix} \begin{matrix} -2 \\ 3 \end{matrix}$

$\begin{pmatrix} -2 \\ 3 \end{pmatrix}$

....

(1)

(Total for Question 10 is 3 marks)

11 (a) Simplify $\boxed{x}+\boxed{x}+x+\boxed{y}+y$

1// /

$3x + 2y$

NOT x^3 NOT y^2

$3x + 2y$

(1)

(b) Simplify $\boxed{3p}+7q\boxed{-p}-4q$

1 Y 1

$2p + 3q$

$2p + 3q$

(2)

(c) Expand $6(2m-3)$

$12m - 18$

$12m - 18$

(1)

(d) Solve $7f + 6 = 27$

BALANCE   or   JOURNEY

$7f + 6 = 27$ $f \to \times 7 \to +6 \to 27$

$-6 \qquad -6$ $\downarrow$

$7f \quad = 21$ $\boxed{3} \leftarrow \div 7 \leftarrow -6 \leftarrow 27$ $f=$ ___3.___

$\div 7 \qquad \div 7$

$f \quad = 3.$

(2)

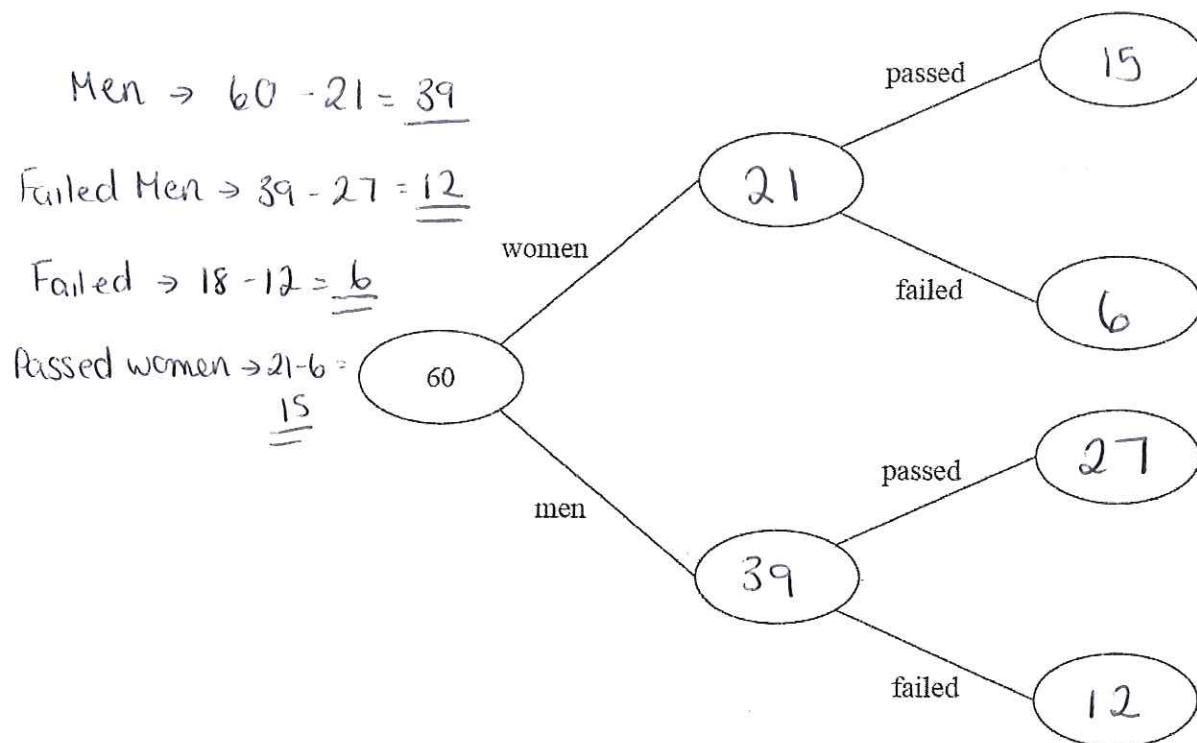**(Total for Question 11 is 6 marks)**

Check!

$7 \times (3) + 6 = 27 \checkmark$

12 60 people each took a driving test one day.

21 of these people were women.
18 of the 60 people failed their test.
27 of the men passed their test.

} Fill in given
information

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

Men → 60 - 21 = 39

Failed Men → 39 - 27 = 12

Failed → 18 - 12 = 6

Passed women → 21 - 6 = 15

```
                                        passed      15
                            21
                                        failed       6
              women
          60
              men
                            39          passed      27

                                        failed      12
```

(3)

One of the men is chosen at random.

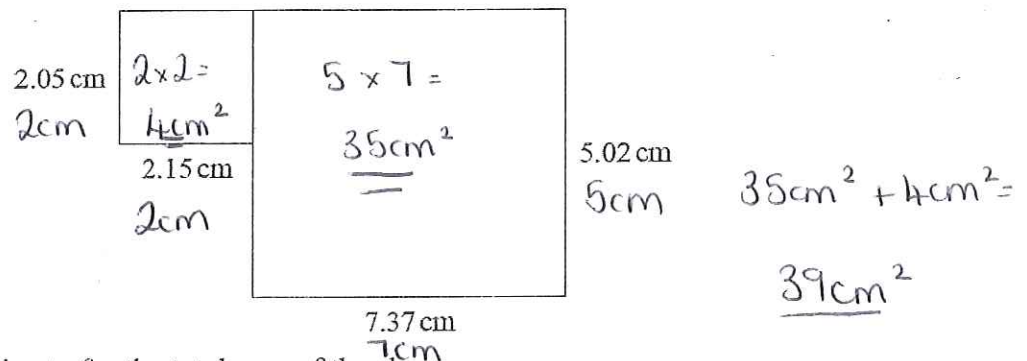(b) Work out the probability that this man failed his test.

$$\frac{12}{39}$$

$\frac{12}{39}$

(2)

(Total for Question 12 is 5 marks)

13 This shape is made from two rectangles.

2.05 cm *[handwritten:]* 2×2 = 4cm² *[in rectangle]* 5 × 7 = 35cm²
2cm
2.15 cm
2cm

5.02 cm *[handwritten:]* 5cm   35cm² + 4cm² = 39cm²

7.37 cm *[handwritten:]* 7cm

(a) Work out an estimate for the total area of the shape.

[handwritten:] ↓
Estimate → 1 significant figure

.... **39** .... cm²

(3)

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

[handwritten:] Underestimate as measurements were rounded down

(1)

(Total for Question 13 is 4 marks)

---

14 A cafe sells cakes and scones.

On Tuesday, the ratio of the number of cakes sold to the number of scones sold was 5 : 2
On Tuesday, the cafe sold 80 scones. *[handwritten:]* ← (Not 80 altogether)
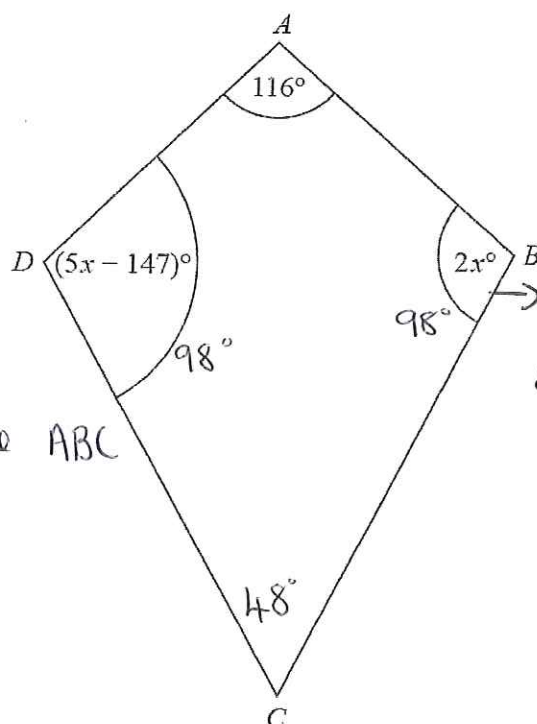
How many cakes were sold on Tuesday?

[handwritten:]
Cakes : Scones

×40 ⌈ 5 : 2 ⌉ ×40
Tuesday ⌊ 200 : 80 ⌋

.... **200** cakes ....

(Total for Question 14 is 2 marks)

15 *ABCD* is a kite with *AD* = *AB*

A

116°

D (5x − 147)°

2x° B

98°

98°

$2x$

$2 \times (49) = 98$

Angle ADC and Angle ABC are the same.

98°

48°

C

Find the size of the smallest angle of the kite.

① $5x - 147 = 2x$

$-2x \qquad\qquad -2x$

$3x - 147 = 0$

$+147 \qquad\qquad +147$

$3x \qquad = 147$

$\div 3 \qquad\qquad \div 3$

$x \qquad = 49$

② · Substitute x to find the value of the angles

③ Find the missing angle.

```
   116
 +  98
 +  98          360 - 312 = 48°
   ___
   3 1 2
   2 2
```

Smallest angle → 48°

..............48..............°

(Total for Question 15 is 4 marks)

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16   Change 4500 mm^3 into cm^3.   NOT just mm → cm.

mm   ×   mm   ×   mm   =   mm³
 ↓   ↓   ↓   ↓
÷10   ÷10   ÷10   = ÷1000
 ↓   ↓   ↓   ↓ 3
cm   ×   cm   ×   cm   =   cm³

$4500 \div 1000 = 4.5 \text{ cm}^3$.

.... 4.5 .... cm^3

(Total for Question 16 is 2 marks)

17   Work out $2\frac{3}{5} - 1\frac{5}{6}$

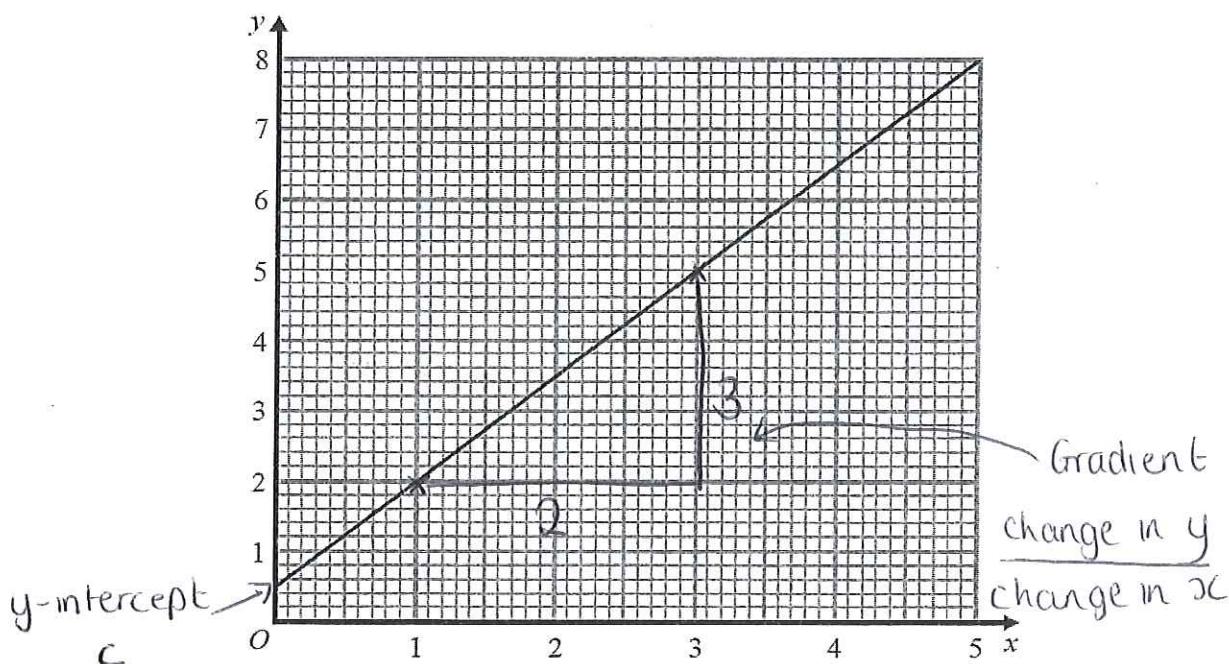① Turn to improper fractions

$$\frac{13}{5} - \frac{11}{6}$$

② Change to common denominators and make fractions
                                        equivalent

$$\frac{78}{30} - \frac{55}{30} = \frac{23}{30}$$

③ Subtract numerators.

$\frac{23}{30}$
....

(Total for Question 17 is 3 marks)

18

y-intercept
c

Phone calls cost £ y for x minutes.

The graph gives the values of y for values of x from 0 to 5.

→ where it cuts the y-axis.

(a) (i) Give an interpretation of the intercept of the graph on the y-axis.

Where it crosses the y-axis shows the fixed charge which is the starting price for 0 minutes

→ how steep the line is.

(ii) Give an interpretation of the gradient of the graph.

Gradient shows how much the price increases every minute

(2)

(b) Find the equation of the straight line in the form $y = \underline{m}x + \underline{c}$

m = gradient $\dfrac{\text{change in } y}{\text{change in } x}$ $\dfrac{3}{2}$ = 1.5 or leave as $\dfrac{3}{2}$

c = where it crosses the y-axis → + 0.5

$y = 1.5x + 0.5$

Put them into the equation

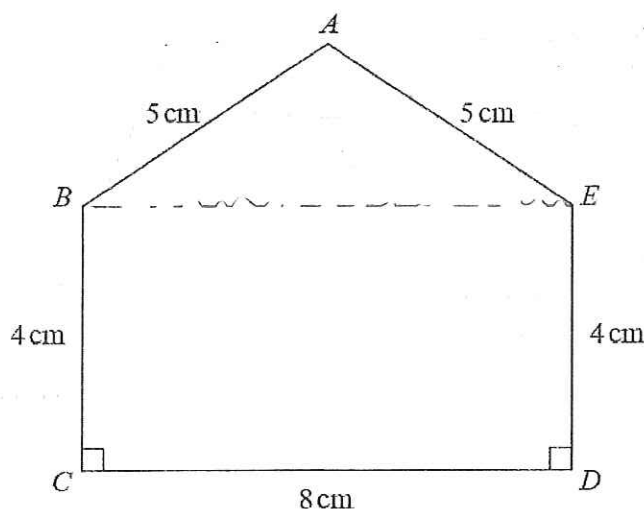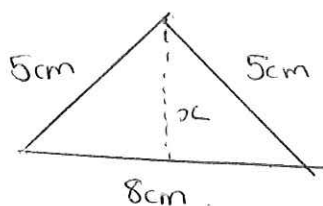$y = 1.5x + 0.5$

(3)

(Total for Question 18 is 5 marks)

19 *ABCDE* is a pentagon.
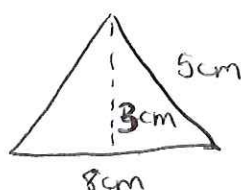

Work out the area of *ABCDE*.

Area of the triangle

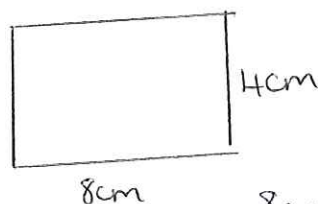Need perpendicular height

① Pythagoras

$5^2 - 4^2 =$

$25 - 16 = 9$

$\sqrt{9} = 3$.

② Area of the triangle

$\dfrac{b \times h}{2}$ ✓ Perpendicular height

$\dfrac{8 \times 3}{2} = 12cm^2$

③ Area of the rectangle

$8cm \times 4cm = 32cm^2$

④ Add the areas together.

$12cm^2 + 32cm^2 = 44cm^2$

.................44................. cm²

(Total for Question 19 is 5 marks)

20 On Monday, Tarek travelled by train from Manchester to London.

Tarek's train left Manchester at 08 35
It got to London at 11 05
The train travelled at an average speed of 110 miles per hour.

On Wednesday, Gill travelled by train from Manchester to London.

Gill's train also left at 08 35 but was diverted.
The train had to travel an extra 37 miles.
The train got to London at 11 35

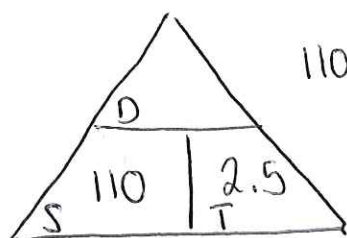Work out the difference between the average speed of Tarek's train and the average speed of Gill's train.

· Tarek

Time : 8 35 - 11 05
      2 hours and 30 minutes

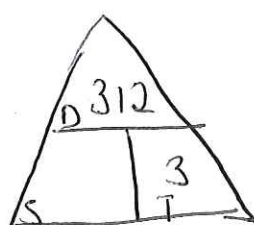Speed : 110mph

Find distance

$110 \times 2.5 = 275$ miles.

Gill

Time : 8 35 - 11 35
      3 hours

Distance : 275 + 37 = 312
      312 miles

Find speed
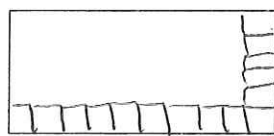
$312 \div 3 = 104$ mph

Tareks train speed → 110mph

Gills train speed → 104mph

Difference is 6mph.

.................6................ miles per hour

(Total for Question 20 is 4 marks)

21 The diagram shows a rectangular wall.

6 up . Tile ☐ 30cm 60cm

1.8 m

6 m

10 across

Frank is going to cover the wall with rectangular tiles.
Each tile is 60 cm by 30 cm.

6 m ÷ 0.6 m = 10

1.8 m ÷ 0.3 m = 6

M ☐ 0.3m

0.6 m

$\frac{3}{5}$ of the tiles will be white.

Some of the tiles will be green.
The rest of the tiles will be blue.
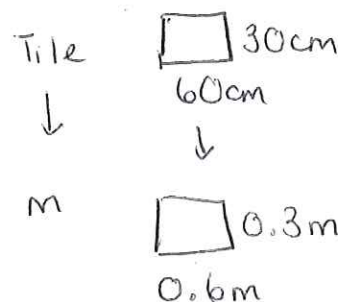
The ratio of the number of green tiles to the number of blue tiles will be 1 : 3

(a) Assuming there are no gaps between the tiles, how many tiles of each colour will Frank need?

① Fit 10 slabs across and 6 up.
Fit 60 slabs in the wall

② $\frac{3}{5}$ of 60 = 36 white tiles

③ 24 tiles left

④ Green : Blue   24 ÷ 4 = 6

×6 (1 : 3) ×6

6 : 18

white tiles ....36..........

green tiles ....6..........

blue tiles ....18..........

(5)

Frank is told that he should leave gaps between the tiles.
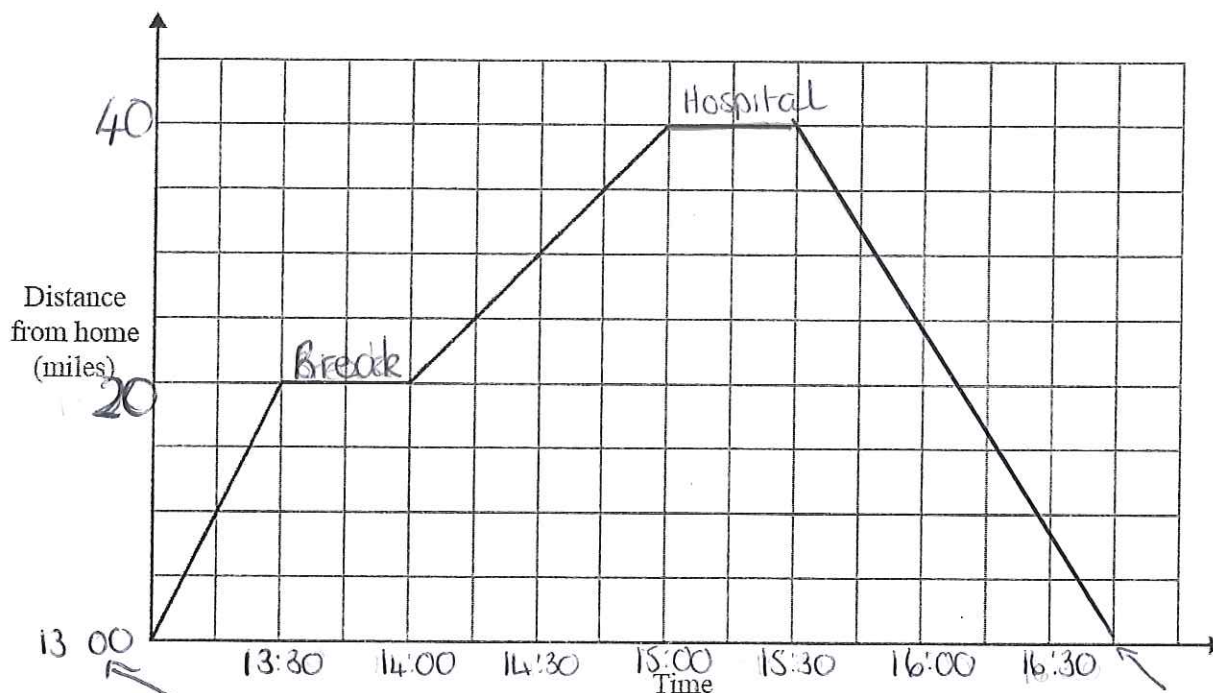
(b) If Frank leaves gaps between the tiles, how could this affect the number of tiles he needs?

......Fewer tiles may be needed..........................

....

(1)

(Total for Question 21 is 6 marks)

22 On Monday Ria delivered a parcel to a hospital.
The travel graph represents Ria's journey to the hospital.

Ria left home at 13 00 Starting time.
She drove for 30 minutes at a constant speed of 40 mph. → 30 minutes
She then stopped for a break.

Ria then drove to the hospital at a constant speed.
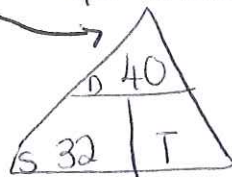She was at the hospital for 30 minutes.
She then drove home at a constant speed of 32 mph.

Show that she does not arrive home before 16 30

40 miles = 1 hour
20 miles = 30 minutes

40 miles home at 32mph.

Time = $\frac{40}{32}$
= 1.25
1 hour and 15 minutes

TIPS

Fill in graph as you go along
this will help to work out
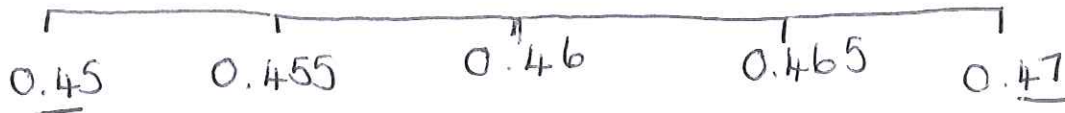the time at the end.

The graph shows Ria would get home at 16:45 and not
16:30.

(Total for Question 22 is 4 marks)

23 A number, y, is rounded to 2 significant figures.

The result is 0.46.

Write down the error interval for y.

```
0.45      0.455      0.46      0.465      0.47
```
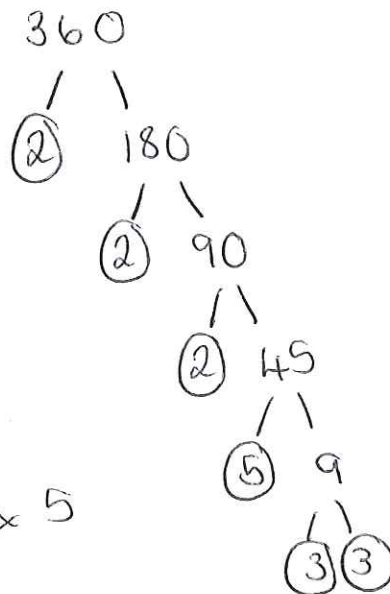
Write two significant figures
either side of 0.46. Find
numbers halfway.

$0.455 \leq y < 0.465$

(Total for Question 23 is 2 marks)

24 Write 360 as a product of its prime factors.

```
        360
        / \
      (2)  180
           / \
         (2)  90
              / \
            (2)  45
                 / \
               (5)  9
                    / \
                  (3)(3)
```

$2 \times 2 \times 2 \times 3 \times 3 \times 5$

$= 2^3 \times 3^2 \times 5$

$2^3 \times 3^2 \times 5$

(Total for Question 24 is 3 marks)

TOTAL FOR PAPER: 80 MARKS