Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

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

Monday 11 November 2024

Morning (Time: 1 hour 30 minutes)

Paper reference **1MA1/3F**

Mathematics

Paper 3 (Calculator)
Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB or B pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **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.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P75161A

P 7 5 1 6 1 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 down the value of the 7 in the number 3721

3 7 2 1
↑ ↑ ↑
100s 10s 1s

7 x 100 = 700

700

(Total for Question 1 is 1 mark)

2 Work out $\frac{1}{6}$ of 96

96 ÷ 6 = 16

16

(Total for Question 2 is 1 mark)

3 Write down **two** factors of 16

1 16
2 8
4

1 and 16

(Total for Question 3 is 1 mark)

4 Write the following numbers in order.
Start with the lowest number.

−3 4 −7 6 0

−7 −3 0 4 6

(Total for Question 4 is 1 mark)

5 Find the value of $\sqrt{2.25}$

1.5

(Total for Question 5 is 1 mark)

6 (a) Solve $x + x + x + x = 20$

$4x = 20$

$\div 4 \quad \div 4$

$x = 5$

$x =$ 5

(1)

(b) Solve $y + 7 = 24$

$-7 \quad -7$

$y = 17$

$y =$ 17

(1)

(c) Solve $\frac{w}{2} = 4$

$\times 2 \quad \times 2$

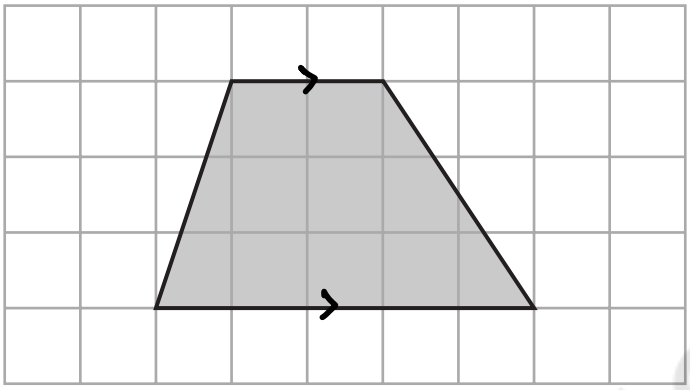
$w = 8$

$w =$ 8

(1)

(Total for Question 6 is 3 marks)

7 Here is a quadrilateral.



(a) Write down the special name for this quadrilateral.

Trapezium

(1)

(b) On the grid below, draw a right-angled triangle.

(1)

(Total for Question 7 is 2 marks)

8 Nina orders some items from a DIY shop.
Here is her bill.

Item	Quantity	Cost of each item	Total
Pack of screws	4	£29.99	£119.96
Tin of paint	2	£24.95	£ 49.90
Wooden plank	30	£7.75	£232.50
		Delivery charge	£14.95
		Total cost	£ 417.31

(a) Complete all the missing information in the bill.

2 × £24.95 = £49.90

£232.50 ÷ £7.75 = 30

£119.96 + £49.90 + £232.50 + £14.95

(3)

At the beginning of January, Jeff had £892.48 in his bank account.

During January, Jeff

had £4.47 interest added to his account
paid £240 into his account
spent £365.50 from his account.

(b) How much money did Jeff have in his account at the end of January?

£892.48 + £4.47 + £240 = 1136.95

£1136.95 - £365.50 = £771.45

£ 771.45

(3)

(Total for Question 8 is 6 marks)

9 There are 200 people at a party.

$\frac{2}{5}$ of the people are children.
The rest of the people are adults.

35% of the children are vegetarian.
45% of the adults are vegetarian.

How many of the people are **not** vegetarian?

Children

$\frac{2}{5}$ of 200

$\frac{2}{5} \times 200 = 80$

35% vegetarian

$100 - 35 = 65$

65% non-vegetarian

65% of 80

$\div 100$

$0.65 \times 80 = 52$

Adults

$200 - 80 = 120$

45% vegetarian

$100 - 45 = 55$

55% of 120

$\div 100$

$0.55 \times 120 = 66$

Total: $52 + 66 = 118$

118

(Total for Question 9 is 5 marks)

10 Here is part of a train timetable between Horwich and Manchester.

Horwich	07 13	07 46	08 14	08 44	09 14
Lostock	07 16		08 17		09 17
Bolton	07 21	07 54	08 22	08 52	09 22
Salford	07 36	08 05	08 36	09 05	09 36
Manchester	07 47	08 15	08 45	09 15	09 45

(a) How long should the 07 46 train from Horwich take to get to Salford?

07 46 → 08 00 → 08 05

+14 mins +5 mins

19 minutes

(1)

Barnie has a job interview in Manchester.

Barnie takes 6 minutes to walk from his home to the station in Lostock.
He will take 8 minutes to walk from the station in Manchester to his interview.

Barnie needs to be at the interview no later than 09 00

(b) (i) What is the latest time Barnie can leave his house and be on time for the interview?

08 17 → 08 11

−6 mins

08 11

(3)

The time of Barnie's interview is changed.
Now he has to be at the interview no later than 09 15

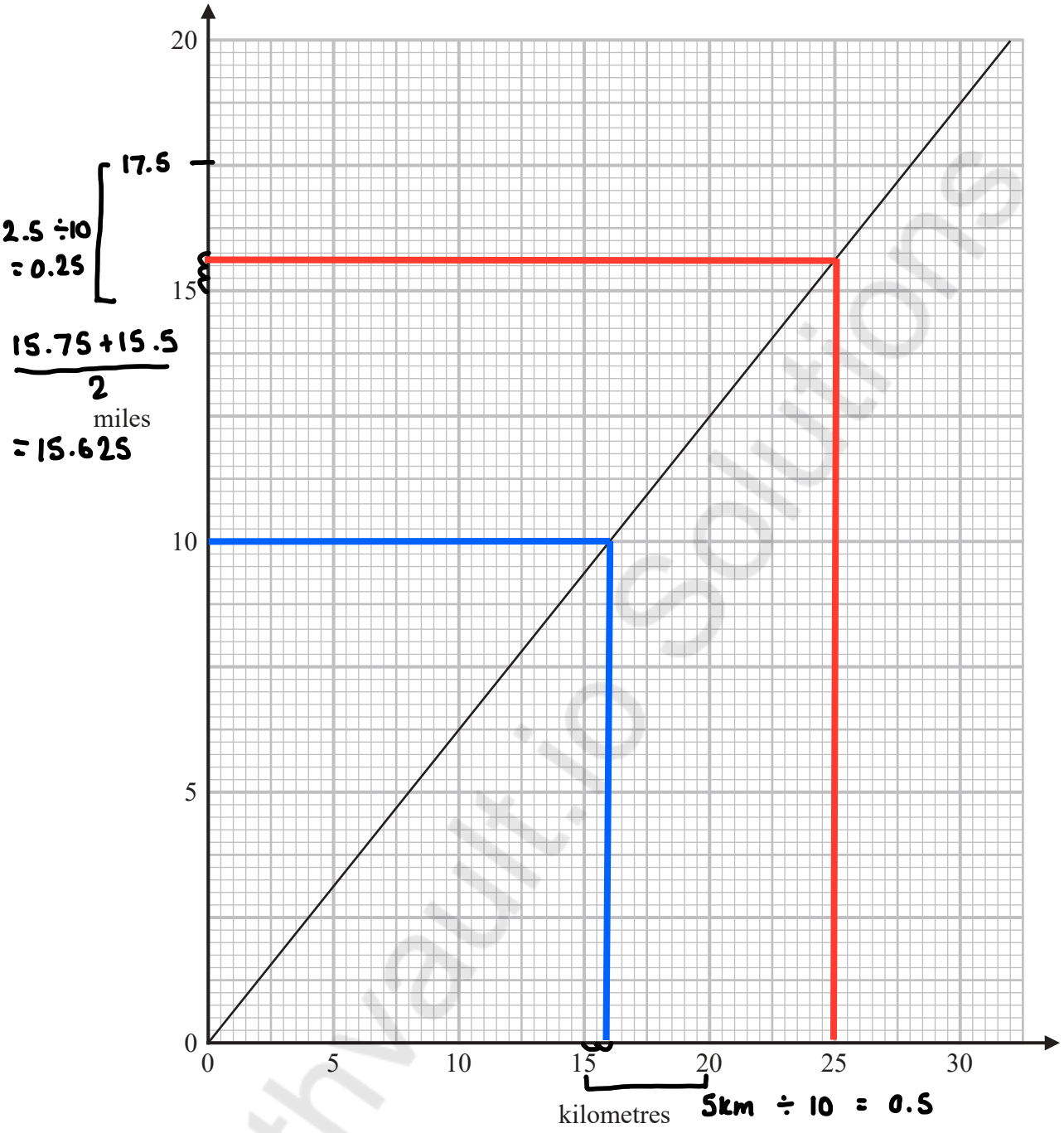
(ii) What effect does the change of time have on the latest time Barnie can leave his house?

No effect, he can leave later.

(1)

(Total for Question 10 is 5 marks)

11 You can use this graph to change between miles and kilometres.



(a) Change 10 miles into kilometres.

16 kilometres

(1)

Rob drives 17 miles from Bridlington to Scarborough.
He then drives 50 kilometres from Scarborough to Staithes.

(b) What is the total distance Rob drives?
Give your answer in miles.

50km = 31.25 miles (×2)

25km = 15.625 miles (×2)

Total: 17 + 31.25 = 48.25

48.25 miles

(3)

(Total for Question 11 is 4 marks)

12 A shop sells apples and oranges.

There are 6 apples in each pack of apples.
There are 7 oranges in each bag of oranges.

The shop sells x packs of apples and y bags of oranges.

Write an expression, in terms of x and y, for the total number of apples and oranges the shop sells.

$6 \times x$ = total apples

$6x$

$7 \times y$ = total oranges

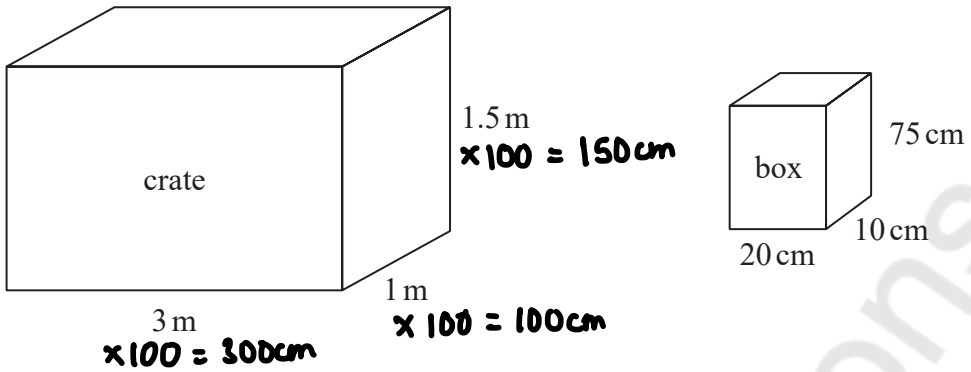
$7y$

total apples + oranges = $6x + 7y$

$6x + 7y$

(Total for Question 12 is 2 marks)

13 The diagram shows a crate and a box.



The crate is 3 m by 1 m by 1.5 m.
The crate is completely filled with boxes.
Each box is 20 cm by 10 cm by 75 cm.

Work out the number of boxes in the crate.

100cm = 1m
×100

V = l x w x h

Vol. crate = 300 x 100 x 150
= 4 500 000 cm³

Vol. box = 20 x 10 x 75
= 15 000 cm³

4 500 000 cm³ ÷ 15 000 cm³ = 300

300

(Total for Question 13 is 4 marks)

14 Harry works in a shop.
From Monday to Friday his basic rate of pay is £8 per hour.

On Saturday and Sunday, Harry's rate of pay is $1\frac{1}{2}$ times his basic rate of pay.

The table shows the number of hours Harry worked each day last week.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Hours worked	6	6	6	6	6	4	3

Work out Harry's total pay last week.

Mon - Fri

6 + 6 + 6 + 6 + 6 = 30 hours

30 x £8 = £240

Sat - Sun

1.5 x £8 = £12

4 + 3 = 7 hours

£12 x 7 = £84

Total Pay

£240 + £84 = £324

£ 324

(Total for Question 14 is 4 marks)

15 The table gives information about the ages of the 41 children in Blackrod football club.

Age (years)	Frequency	Age x Freq
8	6	6 x 8 = 48
9	7	9 x 7 = 63
10	15	10 x 15 = 150
11	11	11 x 11 = 121
12	2	12 x 2 = 24
	41	406

(a) Work out the mean age.
Give your answer correct to 1 decimal place.

Mean = total ages / no. of children

= 406 / 41

= 9.90243

= 9.9

9.9 years

(3)

Rohan is working out the modal age of the children in Blackrod football club.
He says,

"The highest frequency is 15, so the modal age is 15"

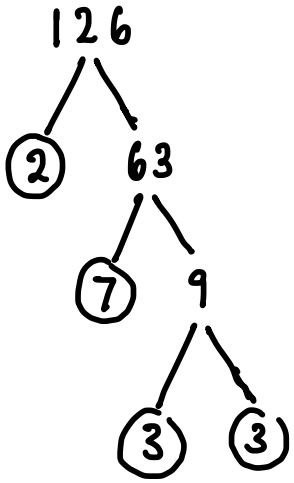
(b) Is Rohan's answer correct?
Give a reason for your answer.

No. The modal age is 10.

(1)

(Total for Question 15 is 4 marks)

16 (a) Write 126 as a product of its prime factors.



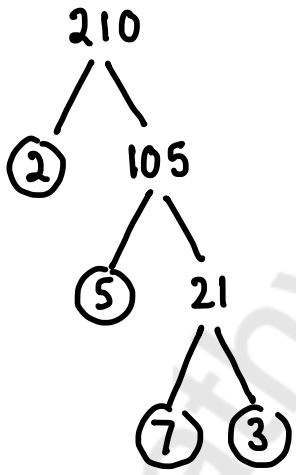
$2 \times 3 \times 3 \times 7$

$2 \times 3^2 \times 7$

$2 \times 3^2 \times 7$

(2)

(b) Find the highest common factor (HCF) of 126 and 210



$126 = 2 \times 3 \times 3 \times 7$

$210 = 2 \times 3 \times 5 \times 7$

$HCF = 2 \times 3 \times 7$

$= 42$

42

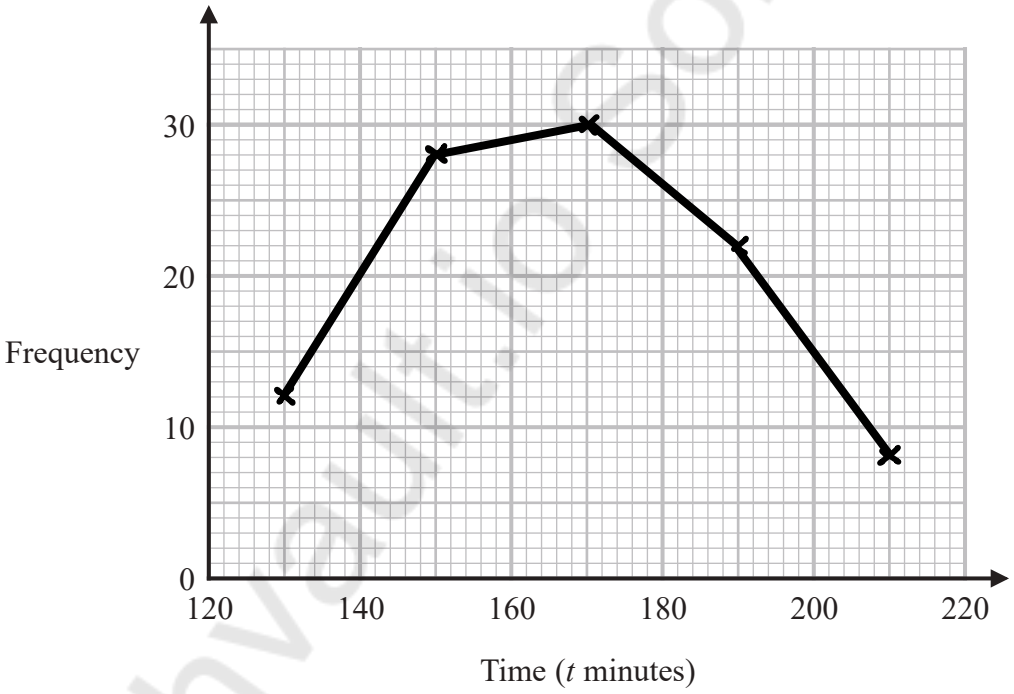
(2)

(Total for Question 16 is 4 marks)

17 The table shows information about the times, in minutes, 100 people took to complete a bike race.

Time (t minutes)	Frequency	midpoint
$120 \leqslant t < 140$	12	130
$140 \leqslant t < 160$	28	150
$160 \leqslant t < 180$	30	170
$180 \leqslant t < 200$	22	190
$200 \leqslant t < 220$	8	210

On the grid below, draw a frequency polygon for this information.



(Total for Question 17 is 2 marks)

18 (a) Write 3.402×10^5 as an ordinary number.

3.40200

340 200

(1)

(b) Write 0.8026 in standard form.

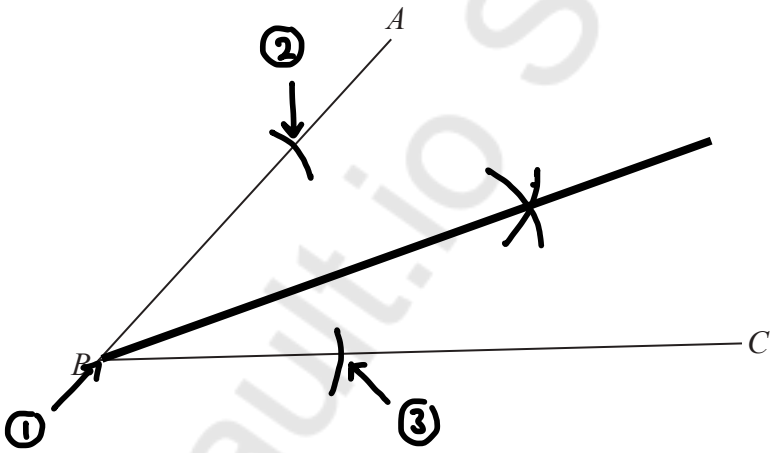
8.026 × 10 -1

8.026 x 10 -1

(1)

(Total for Question 18 is 2 marks)

19 Use ruler and compasses to construct the bisector of angle *ABC*.
You must show your construction lines.



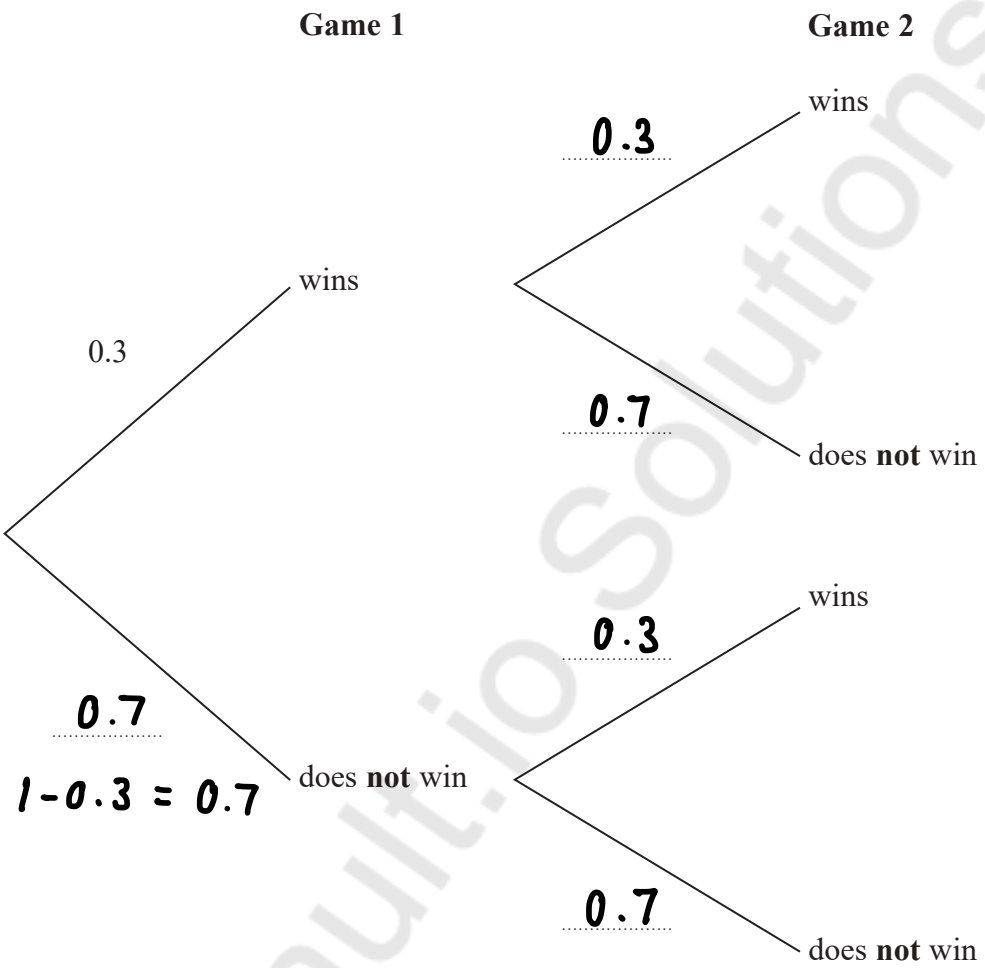
(Total for Question 19 is 2 marks)

20 Dan is playing cards.

The probability that he will win a game of cards is 0.3

Dan plays two games of cards.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Dan does **not** win either game.

p(w'-game 1) x p(w'-game 2)

0.7 x 0.7 = 0.49

0.49

(2)

(Total for Question 20 is 4 marks)

21 Robyn buys a total of 240 pens and pencils, where

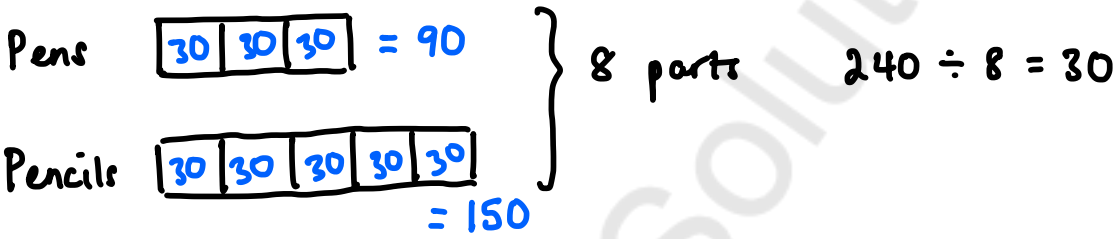
number of pens : number of pencils = 3 : 5

Robyn pays 9p for each pen.
She sells each pen for 11p.

Robyn pays 6p for each pencil.
She sells each pencil for 10p.

Robyn sells all of the pens and pencils.

Work out Robyn's percentage profit.
Give your answer correct to 1 decimal place.
You must show all your working.



Pens

Paid : 9p x 90 = 810p

Sold : 11p x 90 = 990p

Pencils

Paid : 6p x 150 = 900p

Sold : 10p x 150 = 1500p

Total paid : 810p + 900p = 1710p

Total sold : 990p + 1500p = 2490p

Profit = Sold - Paid
= 2490p - 1710p
= 780p

$$\%\ \text{profit} = \frac{\text{profit}}{\text{paid}} \times 100$$

$$= \frac{780}{1710} \times 100$$

$$= 45.614$$

45.6 %

(Total for Question 21 is 5 marks)

22 The stem and leaf diagram shows the test scores of 23 students from School **A**.

3	0
4	1 2 4 4 5 7
5	3 4 4 6 7 8 8 9
6	0 3 3 3 9
7	1 3 9

Key:
3 | 0 represents 30

Median: 57
Range: 79 - 30 = 49

23 students from School **B** did the same test.

Their median score was 56
The range of their scores was 47

Compare the distribution of the test scores of the students from School **A** with the distribution of the test scores of the students from School **B**.

Median of school A is higher than the median from school B

Range of school A is higher than the range for school B.

(Total for Question 22 is 4 marks)

23 Jana used her calculator to find the value of a number t.
The answer on her calculator began 10.2

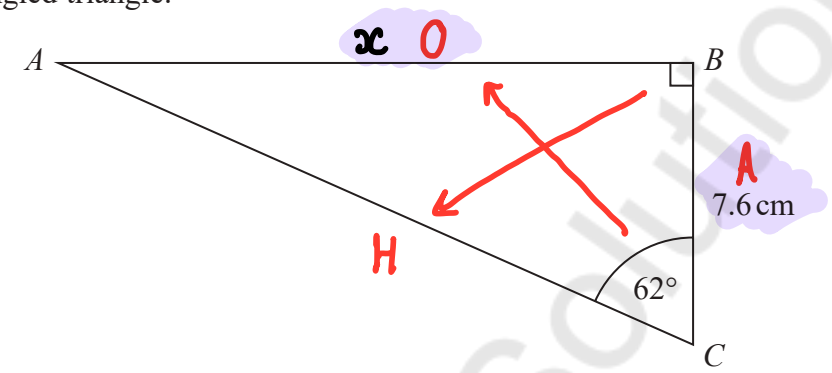
10.2___
10.3

Complete the error interval for t.

10.2 $\leqslant t <$ 10.3

(Total for Question 23 is 2 marks)

24 ABC is a right-angled triangle.



Calculate the length of AB.
Give your answer correct to 1 decimal place.

$\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$

$\tan(62) = \frac{x}{7.6}$

$\times 7.6$ $\times 7.6$

$7.6 \times \tan(62)$

14.2935

14.3 cm

(Total for Question 24 is 2 marks)

25 (a) Simplify fully $2x^3y^5 \times 7x^2y$

$2 \times 7 = 14$

$x^3 \times x^2 = x^{3+2} = x^5$

$y^5 \times y^1 = y^{5+1} = y^6$

$14x^5y^6$

(2)

(b) Simplify $(m^2)^{-3}$

$(x^a)^b = x^{a \times b}$

$(m^2)^{-3} = m^{2 \times -3} = m^{-6}$

m^{-6}

(1)

(Total for Question 25 is 3 marks)

26 Peter invests £4500 in a savings account for 3 years.
He gets 1.8% per year compound interest.

Work out the total amount of interest Peter gets.

Final amount = investment × multiplier^{n} ← no. of years

multiplier = 100% + 1.8%
= 101.8%
↓ ÷100
1.018

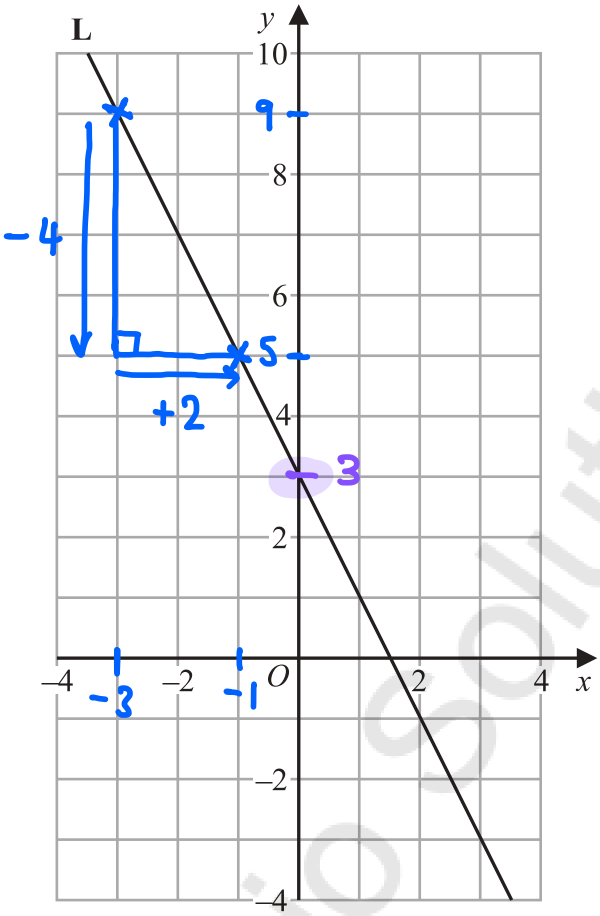
Final amount = 4500×1.018^{3}
= 4747.40

4747.40 − 4500 = 247.40

£ 247.40

(Total for Question 26 is 3 marks)

27 Line **L** is drawn on the grid.



Find an equation for line **L**.

$y = mx + c$

gradient ↑ ; c ← y-intercept → 3

gradient → $\dfrac{\text{change in } y}{\text{change in } x} = \dfrac{-4}{2} = -2$

$y = -2x + 3$

(Total for Question 27 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

BLANK PAGE

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE