FOR OFFICIAL USE

Centre No.	Subject No.	Level	Paper No.	Group No.	Marker's No.

Total marks

[C056/SQP104]

Intermediate 1 Mathematics

Time: 35 minutes

NATIONAL QUALIFICATIONS

Specimen Question Paper 1 (Units 1, 2, 3)
Non-calculator Paper

Fill in these boxes and read what is printed below.

Full name of school or college

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Day Month Year

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1 Answer as many questions as you can.

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SCOTTISH QUALIFICATIONS AUTHORITY

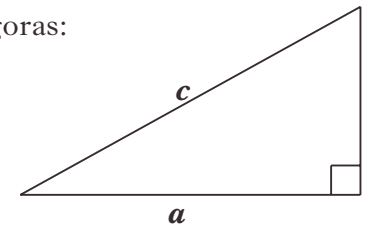
FORMULAE LIST

Circumference of a circle: $C = \pi d$

Area of a circle: $A = \pi r^2$

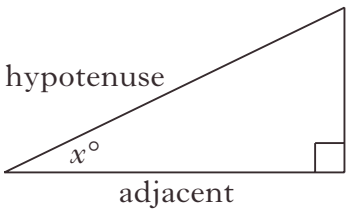
Curved surface area of a cylinder: $A = 2\pi rh$

Theorem of Pythagoras:



$a^2 + b^2 = c^2$

Trigonometric ratios in a right angled triangle:



$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Candidates must not write in this margin

Marks

1. Find 20% of £360.

(1)

2. The distance between the Earth and the Sun is approximately 93 million miles.

Write 93 million in standard form.

(2)

3. The table shows the average winter temperature in two cities.

	London	Moscow
Average winter temperature	3 °C	–8 °C

(*a*) What is the difference between the average winter temperatures in London and Moscow?

(1)

(*b*) One winter's day, the temperature in Moscow was 7 degrees below average.

What was the temperature that day?

(1)

Marks

4. 9 tonnes of tarmac are needed to resurface 100 square metres of road.

How many tonnes of tarmac are needed to resurface a road with an area of 1100 square metres?

(1)

5. To raise money for its funds, a school organises a competition.

In this competition, each person selects **10** football teams.

Points are awarded as follows.

Points

Win	3
Score Draw	2
No-Score Draw	1
Loss	0

PRIZES ARE AWARDED FOR **27 POINTS OR MORE**

One way of winning a prize is shown in the table below.

Number of teams getting 3 points	*Number of teams getting 2 points*	*Number of teams getting 1 point*	*Number of teams getting 0 points*	*Total number of points*
9	0	1	0	28

Complete the table to show all the different ways of winning a prize. **(4)**

Marks

6. (*a*) Solve algebraically the inequality

$$3x + 5 < 17.$$

(2)

(*b*) Solve algebraically the equation

$$7x - 3 = 2x + 32.$$

(3)

7. (*a*) The marks of 20 pupils in a test in class 1C are displayed below in a stem and leaf diagram.

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

3 | 5 means 35

How many pupils scored 44?

(1)

(*b*) The marks of 20 pupils in the same test in class 1D are shown below.

24 26 32 47 50 35 25 26 50 37 38 31 21 29 24 38 39 41 46 32

Construct a stem and leaf diagram to show the marks of the 20 pupils in class 1D.

(3)

(*c*) Compare the distribution of marks for classes 1C and 1D.

(1)

Candidates must not write in this margin

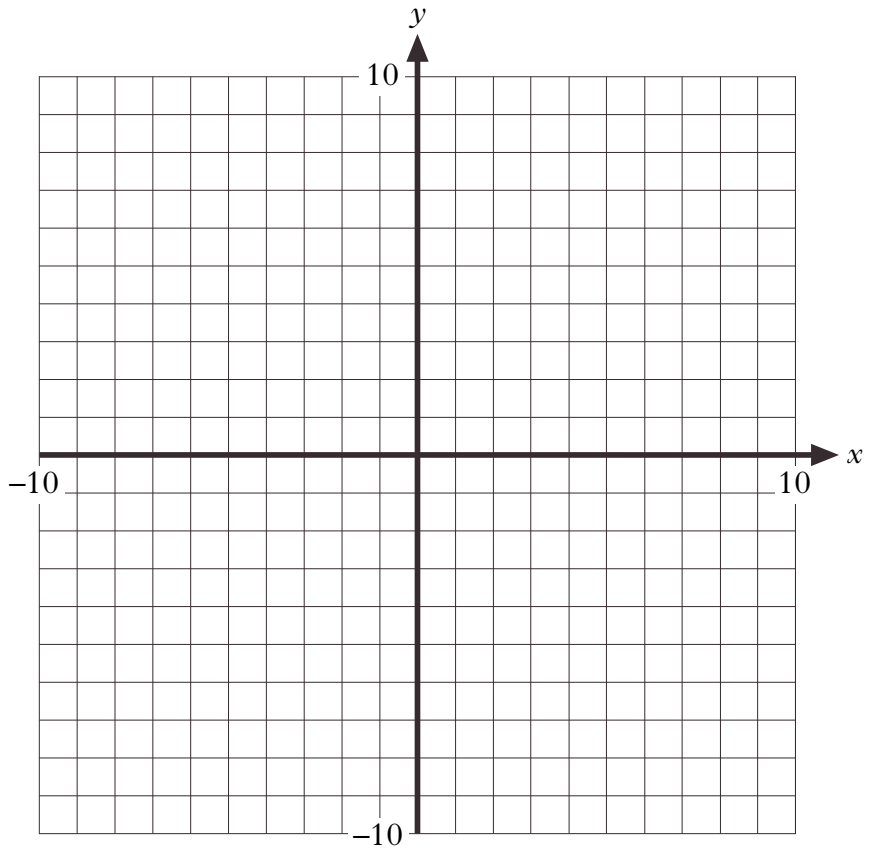
Marks

8. (*a*) Complete the table below for $y = 2x + 1$.

x	-4	0	4
y			

(2)

(*b*) Using the table in part (*a*), draw the graph of the line $y = 2x + 1$ on the grid.



(2)

Candidates must not write in this margin

Marks

9. (*a*) Multiply out the brackets and simplify

$$5(3x + 2y) - 4x.$$

(2)

(*b*) Factorise $15 - 10x$.

(2)

Marks

10. Shareen works flexitime in an office. This means that she can choose her starting and finishing times each day.

One week she plans to leave work early on Friday so she works the following hours on Monday to Thursday.

Day of the Week	*Start Time*	*Finish Time*	*Time Taken for Lunch*
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Tuesday	9.00 am	5.30 pm	45 minutes
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Note: Lunchtimes are not counted as part of working hours.

On Friday she starts work at 9.00 am and does not take a lunch break.

If Shareen wants to work exactly 35 hours this week, when should she leave work on Friday?

(4)

[*END OF QUESTION PAPER*]

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Marks

ADDITIONAL SPACE FOR ANSWERS

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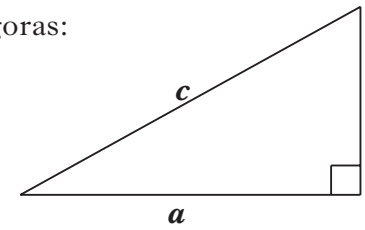

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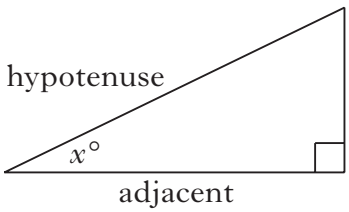

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Marks

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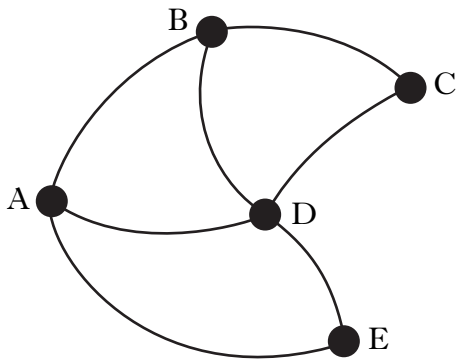
(1)

2.



(*a*) How many arcs are there in this network diagram?

(1)

(*b*) Write down the order of node D.

(1)

Candidates must not write in this margin

Marks

3. The table shows the average winter temperature in two cities.

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(*a*) What is the difference between the average winter temperatures in London and Moscow?

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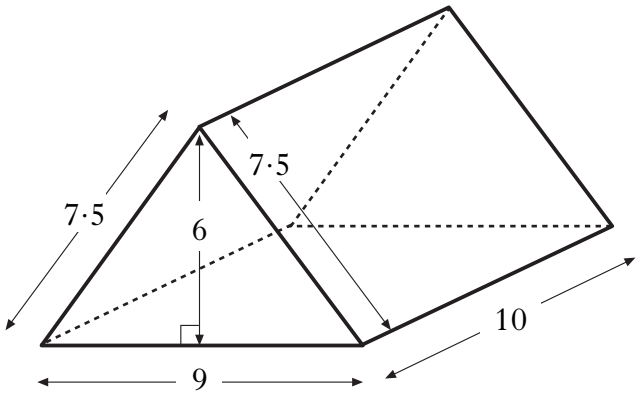
Complete the table to show all the different ways of winning a prize. **(4)**

Marks

6. A triangular prism, with measurements in centimetres, is shown below.



Calculate the **total surface area** of the triangular prism.

(4)

Candidates must not write in this margin

Marks

7. (*a*) The marks of 20 pupils in a test in class 1C are displayed below in a stem and leaf diagram.

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

3 | 5 means 35

How many pupils scored 44?

(1)

(*b*) The marks of 20 pupils in the same test in class 1D are shown below.

24 26 32 47 50 35 25 26 50 37 38 31 21 29 24 38 39 41 46 32

Construct a stem and leaf diagram to show the marks of the 20 pupils in class 1D.

(3)

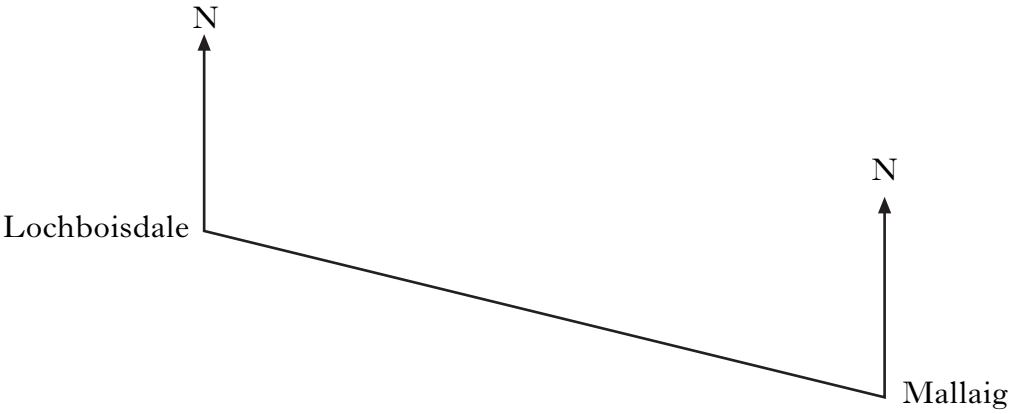
(*c*) Compare the distribution of marks for classes 1C and 1D.

(1)

Marks

8. Mallaig and Lochboisdale are two small ports in the Northwest of Scotland.

The scale drawing shows the positions of Mallaig and Lochboisdale, which are 95 kilometres apart.



(*a*) Write down the scale of the drawing.

(2)

(*b*) A third port, Castlebay, is on a bearing of 210° from Lochboisdale and is due West of Mallaig.

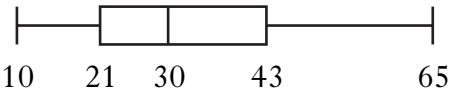
Complete the scale drawing above to show the position of Castlebay.

(3)

Candidates must not write in this margin

Marks

9. (*a*) The boxplot, drawn below, shows the marks scored by pupils in a class test.



(i) State the median mark.

(1)

(ii) State the interquartile range.

(1)

(*b*) The spreadsheet shown below can be used to calculate the discount given and the sale price of the items listed.

	A	B	C	D
1	Item	Basic Price	Discount	Sale Price
2				
3	Paint	£7·99		
4	Brushes	£5·97		
5	Wallpaper	£23·96		
6	Paste	£2·50		

Write down the formula which would go into:

(i) cell C3 to calculate a discount of 40%;

(1)

(ii) cell D3 to calculate the sale price.

(1)

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One week she plans to leave work early on Friday so she works the following hours on Monday to Thursday.

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If Shareen wants to work exactly 35 hours this week, when should she leave work on Friday?

(4)

[*END OF QUESTION PAPER*]

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Marks

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FOR OFFICIAL USE

Centre No.	Subject No.	Level	Paper No.	Group No.	Marker's No.

Total marks

[C056/SQP104]

Intermediate 1 Mathematics

Time: 55 minutes

NATIONAL QUALIFICATIONS

Specimen Question Paper 2 (Units 1, 2, 3)

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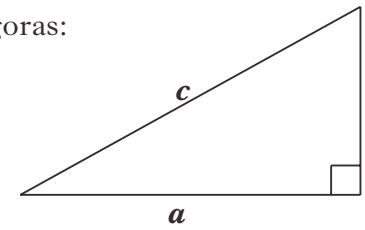

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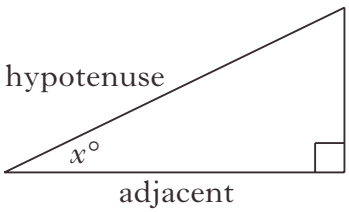

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$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Marks

1. A mobile phone company lists its charges as follows.

Phone Rental	£12·75 per month
Peak rate calls	42p per minute
Off-peak calls	18p per minute
+ VAT at 17·5 %	

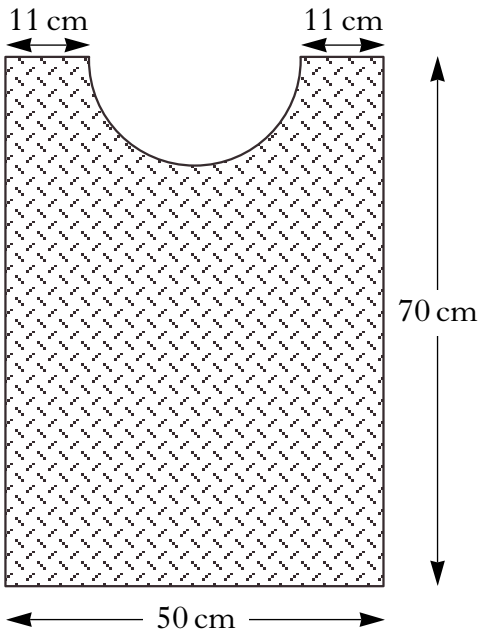
Complete this phone bill.

Rental for 1 month	£12·75
296 minutes at peak rate	£
183 minutes at off-peak rate	£
	£
VAT at 17·5 %	£
TOTAL	£

(5)

Marks

2. A bathroom mat is shown below.



The shape is a rectangle with a semi-circle cut out.
Calculate the area of the mat.

(4)

Candidates must not write in this margin

Marks

3. 23 members of a swimming club take part in a sponsored swim.

The frequency table shows the number of lengths completed by the members.

Number of lengths	*Number of members*
16	1
17	5
18	3
19	4
20	10

(*a*) Find the median number of lengths completed by the members.

(1)

(*b*) Calculate the mean number of lengths completed by the members.

(2)

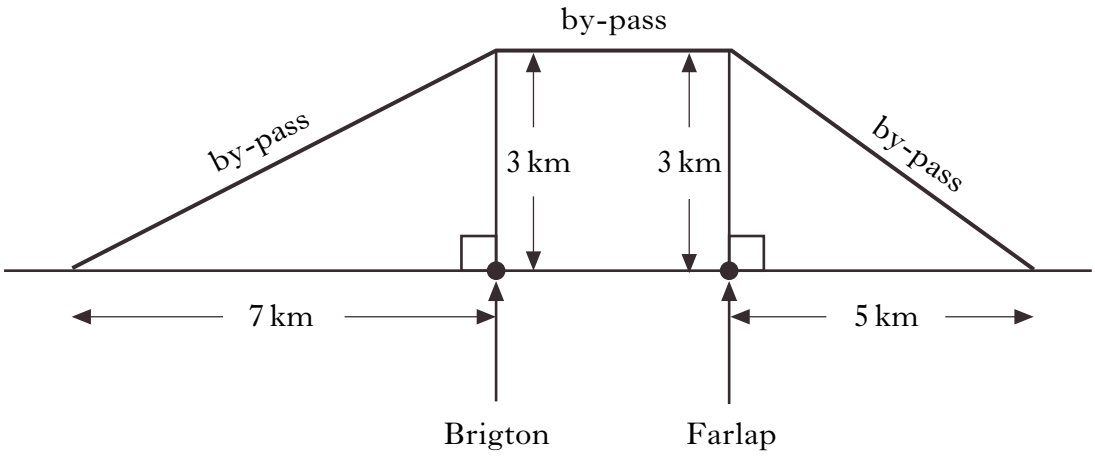
(*c*) Find the probability that a member has completed 19 lengths.

(1)

Marks

4. Brigton and Farlap are two small towns 6 kilometres apart.

A by-pass is being built to reduce the traffic passing through the two towns, as shown in the diagram.



Calculate the total length of the by-pass.

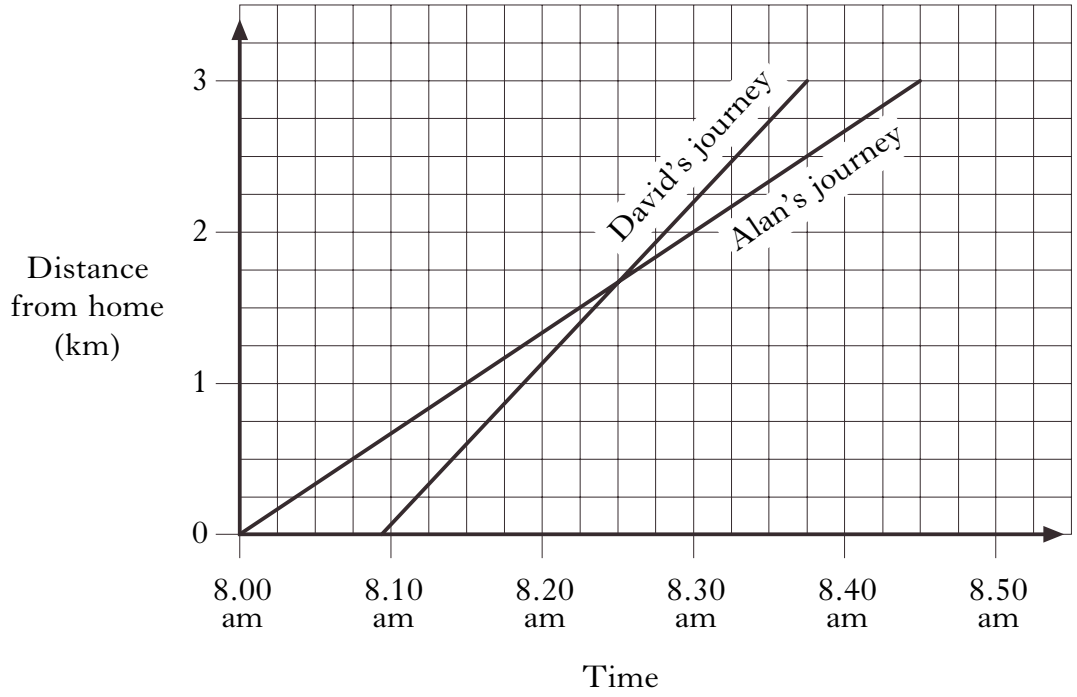
(4)

Candidates must not write in this margin

Marks

5. Alan and David are brothers.

Their journeys from home to school are shown on the graph below.



(*a*) At what time do the brothers meet on their way to school?

(1)

(*b*) How far is the school from their home?

(1)

(*c*) (i) How long does it take David to travel to school?

(1)

(ii) How much longer does it take Alan to travel to school?

(1)

Marks

6. Sunni visited France last year for seven days.

Before going on holiday she changed her £150 into French francs.

The rate of exchange was 8·5 francs to the £.

On holiday she spent 100 francs each day.

When she returned home she changed the remaining francs back into pounds.

The rate of exchange was 9·2 francs to the £.

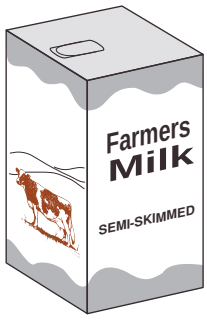
She was charged £4 for changing the francs back into pounds.

How much did Sunni receive?

(5)

7. A milk carton is in the shape of a cuboid with a square base.

The sides of the base are 8 centimetres long.



The volume of the carton is 1280 cubic centimetres.

What is the height of the carton?

(2)

Candidates must not write in this margin

Marks

8. The percentage of softening agents in any fabric conditioner must be between 15% and 30% for it to be effective.

A 640 ml sample of Ocean, a new fabric conditioner, was found to contain 128 ml of softening agents.

Is Ocean an effective fabric conditioner?

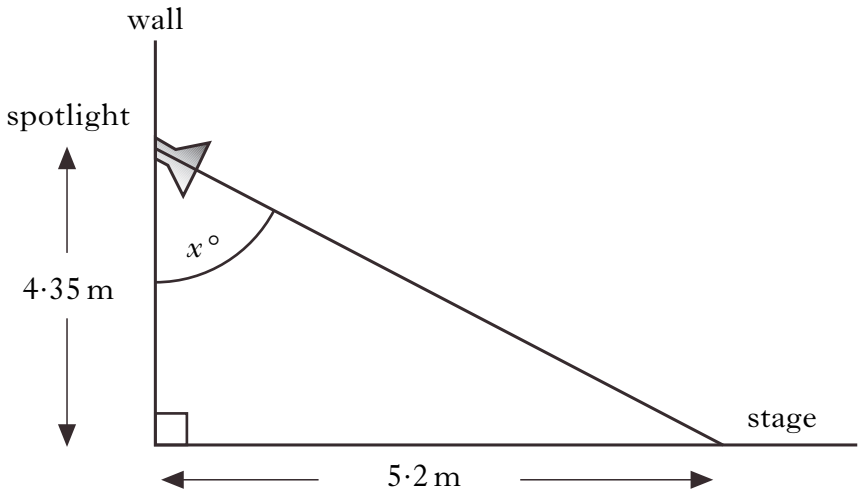
Give a reason for your answer.

(3)

Marks

9. In a school hall, the stage is lit by a spotlight fixed to a wall.

The spotlight is 4·35 metres up the wall and is set to shine on a spot on the stage 5·2 metres away from the wall, as shown in the diagram.



Calculate the size of the angle marked $x°$.

Do not use a scale drawing.

(4)

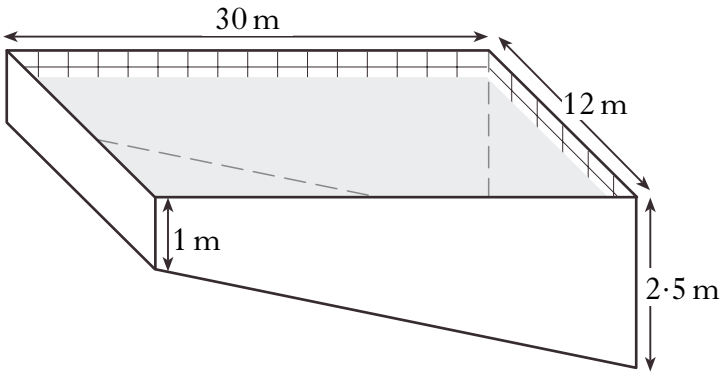
10. The area, A, of a circle is $340\,cm^2$.

Use the formula $r = \sqrt{\frac{A}{\pi}}$ to calculate the radius, r, of the circle.

(3)

Marks

11. A new swimming pool is 30 metres long and 12 metres wide.
The depth of the pool at the shallow end is to be 1 metre.
It is proposed that the depth at the deep end is 2·5 metres.



Regulations state that the slope of the bottom of the pool must be less than 0·07.

The slope can be calculated using the rule

$$\text{slope} = \frac{\text{change in depth of pool, in metres}}{\text{length of pool, in metres}}$$

Will the new pool satisfy the regulations?
Give a reason for your answer.

(3)

Candidates must not write in this margin

Marks

12. A satellite travels in a circular orbit round the earth once every $2\frac{1}{2}$ hours.

The satellite is 2900 kilometres above the earth's surface.

The earth has a radius of 6400 kilometres.

(*a*) What is the radius of the orbit of the satellite?

(1)

(*b*) Calculate the speed of the satellite.

(4)

[*END OF QUESTION PAPER*]

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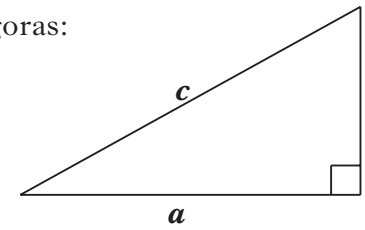

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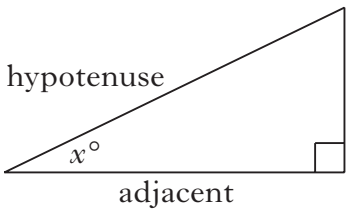

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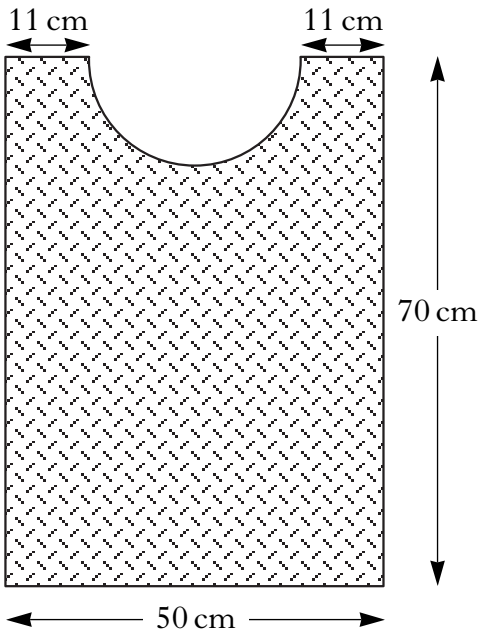

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16	1
17	5
18	3
19	4
20	10

(*a*) Find the median number of lengths completed by the members.

(1)

(*b*) Calculate the mean number of lengths completed by the members.

(2)

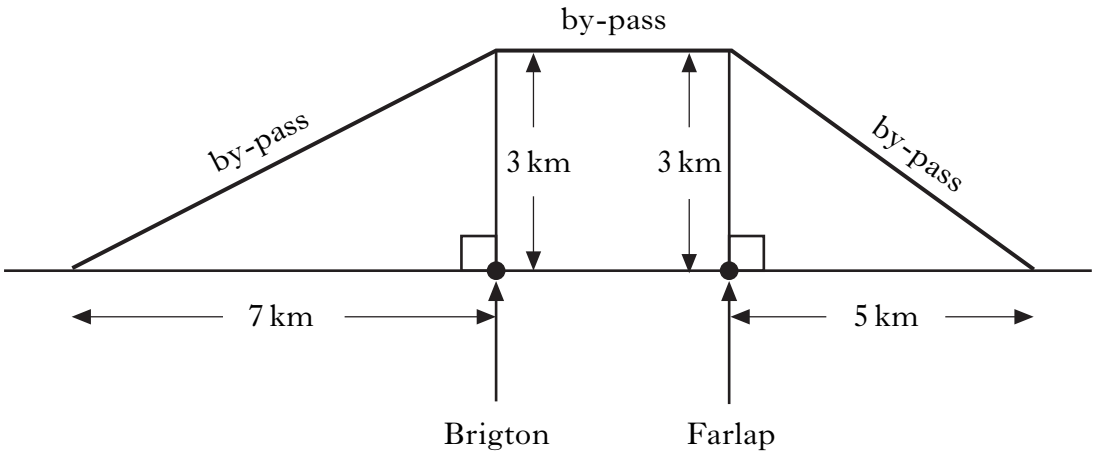
(*c*) Find the probability that a member has completed 19 lengths.

(1)

Marks

4. Brigton and Farlap are two small towns 6 kilometres apart.

A by-pass is being built to reduce the traffic passing through the two towns, as shown in the diagram.



Calculate the total length of the by-pass.

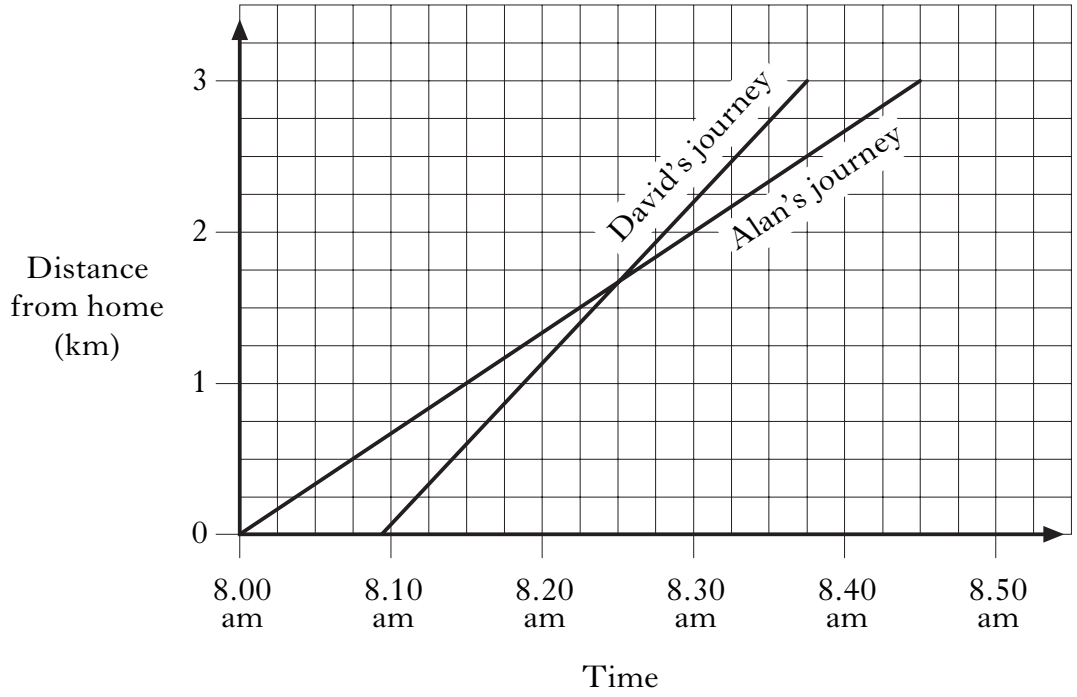
(4)

Candidates must not write in this margin

Marks

5. Alan and David are brothers.

Their journeys from home to school are shown on the graph below.



(*a*) At what time do the brothers meet on their way to school?

(1)

(*b*) How far is the school from their home?

(1)

(*c*) (i) How long does it take David to travel to school?

(1)

(ii) How much longer does it take Alan to travel to school?

(1)

Marks

6. Sunni visited France last year for seven days.

Before going on holiday she changed her £150 into French francs.

The rate of exchange was 8·5 francs to the £.

On holiday she spent 100 francs each day.

When she returned home she changed the remaining francs back into pounds.

The rate of exchange was 9·2 francs to the £.

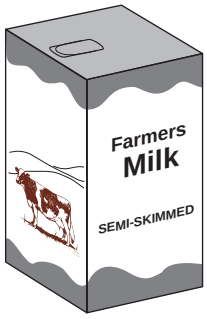
She was charged £4 for changing the francs back into pounds.

How much did Sunni receive?

(5)

7. A milk carton is in the shape of a cuboid with a square base.

The sides of the base are 8 centimetres long.



The volume of the carton is 1280 cubic centimetres.

What is the height of the carton?

(2)

Candidates must not write in this margin

Marks

8. The percentage of softening agents in any fabric conditioner must be between 15% and 30% for it to be effective.

A 640 ml sample of Ocean, a new fabric conditioner, was found to contain 128 ml of softening agents.

Is Ocean an effective fabric conditioner?

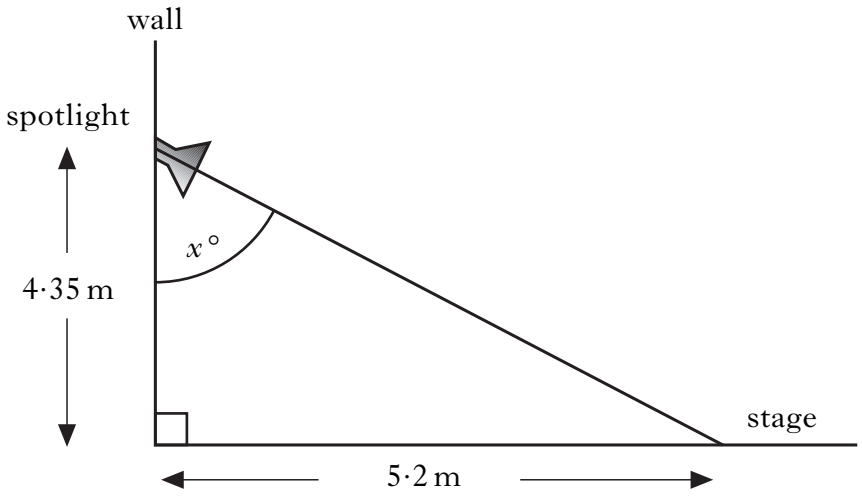
Give a reason for your answer.

(3)

Marks

9. In a school hall, the stage is lit by a spotlight fixed to a wall.

The spotlight is 4·35 metres up the wall and is set to shine on a spot on the stage 5·2 metres away from the wall, as shown in the diagram.



Calculate the size of the angle marked $x°$.

Do not use a scale drawing.

(4)

Candidates must not write in this margin

Marks

10. Part of Adam's weekly pay slip is shown below.

Name	
Adam Brown	
Basic Pay	**Overtime**
£280	
Nat. Insurance	**Income Tax**

(*a*) Adam's basic pay is for working a 40 hour week.
Calculate how much Adam earns per hour.

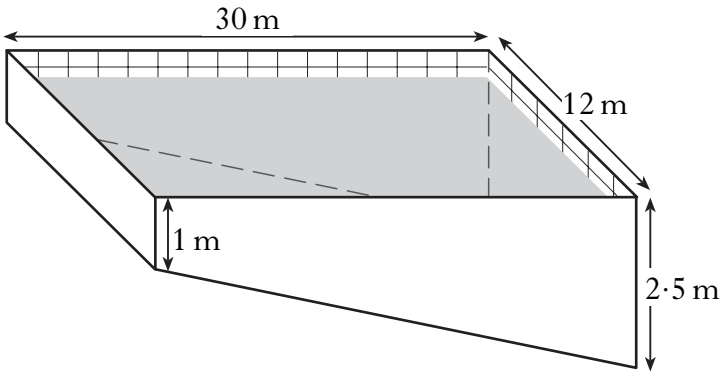
(1)

(*b*) All overtime is paid at time and a half.
One week Adam works 4 hours overtime.
Calculate his gross pay.

(3)

Marks

11. A new swimming pool is 30 metres long and 12 metres wide.
The depth of the pool at the shallow end is to be 1 metre.
It is proposed that the depth at the deep end is 2·5 metres.



Regulations state that the slope of the bottom of the pool must be less than 0·07.

The slope can be calculated using the rule

$$\text{slope} = \frac{\text{change in depth of pool, in metres}}{\text{length of pool, in metres}}$$

Will the new pool satisfy the regulations?
Give a reason for your answer.

(3)

Candidates must not write in this margin

Marks

12. The table shows the monthly payments to be made with and without loan protection when money is borrowed from the Caledonian Bank.

WITH LOAN PROTECTION			**WITHOUT LOAN PROTECTION**		
Period	***Loan***	***Monthly Payment***	***Period***	***Loan***	***Monthly Payment***
12 months	£1000	£97·80	12 months	£1000	£91·25
	£1500	£146·69		£1500	£136·87
	£2000	£195·59		£2000	£182·50
24 months	£1000	£54·81	24 months	£1000	£49·49
	£1500	£82·21		£1500	£74·23
	£2000	£109·62		£2000	£98·98

Jenny Brown wants to borrow £1500 over 12 months.

(*a*) State the monthly payment with loan protection.

(1)

(*b*) Calculate the total repayment with loan protection.

(1)

(*c*) Calculate how much this loan costs Jenny.

(2)

[*END OF QUESTIONS*]

Candidates must not write in this margin

Marks

ADDITIONAL SPACE FOR ANSWERS

[C056/SQP104]

Intermediate 1 Mathematics

NATIONAL QUALIFICATIONS

Specimen Marking Instructions 1 (Units 1, 2, 3)
Non-calculator Paper

SCOTTISH QUALIFICATIONS AUTHORITY

Mathematics Intermediate 1 (Paper 1)

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1.	**ans : £72** •[1] process: find a percentage of a quantity **1 mark**	•[1] £72
2.	**ans: 9.3 x 10^7** •[1] strategy: know to rewrite using number between 1 and 10 •[2] process: complete the standard form **2 marks**	•[1] 9.3 •[2] 9.3 x 10^7
3(a). **3(b).**	**ans : 11˚** •[1] interpret: interpret negative numbers in context **1 mark** **ans : -15˚C** •[1] process: add/subtract integers in context **1 mark**	•[1] 11˚ •[1] -15˚C
4.	**ans : 99 tonnes** •[1] process: carry out simple proportion **1 mark**	•[1] 99 tonnes

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
5.	**ans : 9,1,0,0; 9,0,0,1 10,0,0,0; 8,2,0,0; 8,1,1,0; 7,3,0,0** •[1] interpret: interpret information •[2] interpret: interpret information •[3] strategy: take a systematic approach •[4] strategy: take a systematic approach **4 marks**	 •[1] any one correct way •[2] a second correct way •[3] a further two correct ways •[4] a further correct way
6a.	**ans : $x < 4$** •[1] process: collect constants •[2] process: solve inequality for x **2 marks**	 •[1] $3x < 12$ •[2] $x < 4$
6b.	**ans : $x = 7$** •[1] process: collect terms in x •[2] process: collect constants •[3] process: solve equation for x **3 marks**	 •[1] $5x$ •[2] 35 •[3] $x = 7$

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
7a.	**ans : 2** •[1] interpret: extract data from stem and leaf diagram **1 mark**	•[1] 2
7b.	**ans : 2 | 4656194** **3 | 25781892** **4 | 716** **5 | 00** •[1] communicate: indicate key •[2] communicate: start to construct a stem-and-leaf diagram •[3] communicate: complete the construction **3 marks**	•[1] eg 3 | 5 means 35 •[2] 2 | 3 | 4 | 5 | •[3] 2 | 4656194 3 | 25781892 4 | 716 5 | 00
7c.	**ans : relevant comment** •[1] communicate: interpret stem and leaf diagrams and make comparisons **1 mark**	•[1] in class 1D marks range from 21 → 50 whereas in 1C from 12 → 50

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
8a.	**ans : -7, 1, 9** •[1] process: calculate y •[2] process: complete table of values **2 marks**	•[1] eg –7 •[2] 1 and 9
8b.	**ans : straight line graph of $y = 2x + 1$** •[1] communicate: prepare to draw line •[2] communicate: draw the line $y = 2x + 1$ **2 marks**	•[1] at least 2 points on $y = 2x + 1$ plotted •[2] straight line graph of $y = 2x + 1$

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9a.	**ans : 11*x* + 10 *y*** •[1] process: multiply out the brackets •[2] process: collect like terms **2 marks**	•[1] $15x + 10y$ •[2] $11x + 10y$
9b.	**Ans: 5(3- 2*x*)** •[1] process: identify common factor •[2] process: factorise expression **2 marks**	•[1] 5 •[2] $5(3 - 2x)$
10.	**ans : 1 pm** •[1] strategy: know to calculate total time worked Monday to Thursday •[2] process: calculate the total time •[3] strategy: know to calculate time still to be worked •[4] process: calculate time of leaving **4 marks**	•[1] $7\frac{3}{4}$ hours x 4 or equivalent •[2] 31 hours •[3] (35 – 31) hours •[4] 1 pm

[C056/SQP104]

Intermediate 1 Mathematics

NATIONAL QUALIFICATIONS

Specimen Marking Instructions Paper 1
(Applications of Mathematics questions)
Non-calculator Paper

Mathematics Intermediate 1 (Paper 1) Applications of Mathematics questions

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
2 (*a*)	• interpret: interpret network diagram (number of arcs)	• 7
(*b*)	• interpret: interpret network diagram (order of node)	• 4
6	•[1] know how to find area of triangle	•[1] $\frac{1}{2} \times 9 \times 6$
	•[2] calculate area of both triangular faces	•[2] 54
	•[3] know to find areas of rectangles	•[3] $2 \times (7{\cdot}5 \times 10) + 9 \times 10$
	•[4] calculate total surface area of triangular prism	•[4] 294
8 (*a*)	•[1] interpret: measure distance on map	•[1] distance from Mallaig to Lochboisdale is 9·5 cm
	•[2] communicate: write down scale	•[2] 1 cm represents 10 km
(*b*)	•[1] interpret/communicate: interpret bearing and construct angle accurately	•[1] line at bearing of 210° from Lochboisdale (±2°)
	•[2] interpret/communicate: interpret compass point and construct angle accurately	•[2] line due West of Mallaig
	•[3] communicate: complete scale drawing	•[3] position of Castlebay marked

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9 (*a*) (i)	• interpret: interpret boxplot (median)	• 30
(ii)	• interpret: interpret boxplot (interquartile range)	• 22
(*b*) (i)	• communicate: state formula	• = 0·4 × B3
(ii)	• communicate: state formula	• = 0·6 × B3

[*END OF MARKING INSTRUCTIONS*]

[C056/SQP104]

Intermediate 1 Mathematics

NATIONAL QUALIFICATIONS

Specimen Marking Instructions 2 (Units 1, 2, 3)

SCOTTISH QUALIFICATIONS AUTHORITY

Mathematics Intermediate 1 (Paper 2)

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1.	**ans : £199.76**	
	•[1] process: calculate peak rate	•[1] £124.32
	•[2] process: calculate off-peak rate	•[2] £32.94
	•[3] strategy: know to calculate $17\frac{1}{2}$% of sub total	•[3] $17\frac{1}{2}$% of £170.01
	•[4] process: calculate VAT at $17\frac{1}{2}$%	•[4] £29.75
	•[5] process: calculate total	•[5] £199.76
	5 marks	

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
2.	**ans : 3192 cm^2** •^{1} strategy: know to calculate the radius •^{2} strategy: know to calculate area of semi circle •^{3} strategy: know how to calculate area •^{4} process: carry out all calculations **4 marks**	•^{1} 14cm •^{2} $\frac{1}{2}\times 3.14\times 14^2\ \text{cm}^2$ •^{3} (70 x 50) - $\frac{1}{2}\times 3.14\times 14^2\ \text{cm}^2$ •^{4} 3192 cm^2

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
3a.	**ans : 19** •[1] process : find median **1 mark**	•[1] 19
3b.	**ans : 18.8** •[1] strategy: know how to calculate mean •[2] process: calculate the mean **2 marks**	•[1] $\frac{16\times1+17\times5+18\times3+19\times4+20\times10}{23}$ •[2] 18.73913 (disregard rounding)
3c.	**ans : 4/23** •[1] process : find the probability **1 mark**	•[1] 4/23

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
4.	**ans : 19.446651** •[1] strategy: know to use Pythagoras' theorem •[2] process: correct use of Pythagoras' theorem •[3] process: calculate the two lengths of by-pass •[4] communicate: state total length of by-pass **4 marks**	•[1] use of Pythagoras' theorem •[2] $x^2 = 7^2 + 3^2$ or $y^2 = 3^2 + 5^2$ •[3] $x = 7.6$ and $y = 5.8$ •[4] 19.4 km (disregard rounding)
5a.	**ans : 8.25 am** •[1] interpret: interpret significance of intersection **1 mark**	•[1] 8.25 am
5b.	**ans: 3 km** •[1] interpret: interpret ends of graphs **1 mark**	•[1] 3 km
5c.	**(i) ans $27\frac{1}{2}$ minutes** •[1] (i) interpret: interpret horizontal scale **1 mark** **(ii) ans $7\frac{1}{2}$ minutes** •[1] (ii) interpret: interpret horizontal scale **1 mark**	•[1] $27\frac{1}{2}$ minutes •[1] $7\frac{1}{2}$ minutes

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
6.	**ans : £58.50**	
	$\bullet^1$ strategy: know how to convert to francs	$\bullet^1$ 150 × 8.5 francs
	$\bullet^2$ strategy: know how to calculate money spent	$\bullet^2$ 7 × 100 francs
	$\bullet^3$ strategy: know how to calculate money left and convert to £s	$\bullet^3$ $\frac{150\times 8.5-7\times 100}{9.2}$
	$\bullet^4$ process: carry out all calculations	$\bullet^4$ £62.50
	$\bullet^5$ communicate: state amount received	$\bullet^5$ £58.50
	5 marks	

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
7.	**ans : 20 cm** •[1] strategy: know how to find height of cuboid •[2] process: calculate height **2 marks**	 •[1] 1280 ÷ area of base •[2] 20 cm
8.	**ans : yes; 15% < 20% < 30%** •[1] strategy: know how to express 128 as a percentage of 640 •[2] process: calculate one number as a percentage of another •[3] communicate: give response with valid reason consistent with previous working **3 marks**	 •[1] $\frac{128}{640}\times 100$ •[2] 20% •[3] yes 15% < 20% < 30%

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9.	**ans :** x **= 50.1** •[1] strategy: know to use tan •[2] process: substitute into ratio •[3] process: calculate ratio •[4] process: calculate angle **4 marks**	 •[1] statement involving tan •[2] $\tan x^{o} = \frac{5.1}{4.35}$ •[3] 1.195 ….. •[4] 50.1^{o}
10.	**ans : 10.4 cm** •[1] process: substitute into formula •[2] process: start to evaluate •[3] process: complete evaluation **3 marks**	 •[1] $\sqrt{\frac{340}{3.14}}$ •[2] 108.28 ….. •[3] 10.4 (disregard rounding)

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
11.	**ans : yes; 0.05 < 0.07** •[1] interpret: substitute into formula •[2] process: evaluate formula •[3] communicate: give response and reason consistent with previous working **3 marks**	•[1] $\frac{2.5-1}{30}$ •[2] 0.05 •[3] yes 0.05 < 0.07

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
12a.	**ans : 9300 kilometres** •[1] process: find the radius of the satellite **1 mark**	•[1] 9300
12b.	**ans : 23361.6 km/h** •[1] strategy: know how to calculate speed •[2] strategy: know how to calculate circumference •[3] process: calculate circumference •[4] process: calculate speed **4 marks**	•[1] evidence of $D \div 2.5$ •[2] use of π d or 2π r •[3] 58404 •[4] 23361.6 km/h (disregard rounding)

[END OF MARKING INSTRUCTIONS]

[C056/SQP104]

Intermediate 1 Mathematics

NATIONAL QUALIFICATIONS

Specimen Marking Instructions Paper 2
(Applications of Mathematics questions)

SCOTTISH QUALIFICATIONS AUTHORITY

Mathematics Intermediate 1 (Paper 2) Applications of Mathematics questions

Qu	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
10 (*a*)	• process: find hourly rate	• £7
(*b*)	•[1] strategy: know how to calculate overtime	•[1] 1·5 × £7 × 4
	•[2] process: calculate overtime	•[2] £42
	•[3] process: calculate gross pay	•[3] £322
12 (*a*)	• interpret: interpret table	• £146·69
(*b*)	• process: calculate total repayment	• £1760·28
(*c*)	•[1] strategy: know how to calculate cost	•[1] 12 × £146·69 – £1500
	•[2] process: calculate cost	•[2] £260·28

[*END OF MARKING INSTRUCTIONS*]