BEDOK VIEW SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2023

CANDIDATE
NAME

REGISTER
NUMBER

CLASS

MATHEMATICS
Secondary 1 Express
Paper 1

4052/01

3 October 2023

1 hour 15 minutes

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your index number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions.
If working is needed for any question it must be shown with the answer.
Omission of essential working will result in loss of marks.
The use of an approved scientific calculator is expected, where appropriate.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 50.

Total	

Parent's / Guardian's Signature: ....

[Turn over

Answer **all** the questions.

1 **(a)** Round off the following numbers to 3 significant figures.

   (i) 52.789

   Answer .... [1]

   (ii) 1.00236

   Answer .... [1]

(b) List all the prime numbers between 20 to 30.

   Answer .... [1]

(c) Arrange the following numbers in descending order.

$$\frac{23}{25} \qquad -0.25 \qquad 2.3^2 \qquad \frac{\pi}{3} \qquad -1$$

   Answer .... , ... , ... , ... , ... [2]

---

2 Calculate $\dfrac{-10-\sqrt{(-10)^2 - 4 \times 15 \times (-20)}}{3 \times 12}$, leaving your answer correct to 3 significant figures.

   Answer .... [1]

[Turn over

3   (a) Express 180 as a product of its prime factors in index form.

Answer .... [2]

(b) The number $180p$ is a perfect cube. Find the smallest value of p.

Answer p =............................... [1]

4   Express $-\dfrac{4(x+2)}{5}-\dfrac{x}{4}$ as a fraction in its simplest form.

Answer .... [3]

5   Factorise $-6x-18xy$ completely.

Answer .... [2]

6 Given that $y = \dfrac{2x}{5} + 3$, find

(a) the value of y when $x = -4$,

Answer $y =$............................... [1]

(b) the value of x when $y = 8$.

Answer $x =$............................... [2]

---

7 The first four terms of a sequence are 9, 16, 25 and 36.

(a) Find an expression, in terms of n, for the nth term of the sequence.

Answer .... [2]

(b) One term in the sequence is 100. Find the value of n for the term.

Answer .... [2]

[Turn over

8   Solve

(a) $5x + 3 = 1\frac{1}{2}$,

Answer $x =$.............................. [2]

(b) $\dfrac{2x+3}{2} + 1 = \dfrac{4+x}{2}$.

Answer $x =$.............................. [2]

9   Mr Tan borrows $35000 from a bank for a business.
The bank charges simple interest at a rate of 3.75% per annum.
Calculate the total amount he has to repay the bank at the end of 6 years.

Answer $ .... [3]

10 Jason just returned from a holiday in Japan.

Before his trip, Jason changed $5000 Singapore Dollars to Japanese Yen using the exchange rate of 1 Singapore Dollar (S$) = 103 Japanese Yen (¥).

After the trip, he returned with a remainder of 45000 Japanese Yen and wants to convert his remaining Japanese Yen into Singapore Dollars using the exchange rate of 1 Singapore Dollar (S$) = 110 Japanese Yen (¥).

(a) How much, in Japanese Yen, did he bring to Japan?

Answer ....¥ [2]

(b) How much Singapore Dollars would he get after his trip?

Answer S$............................ [2]

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11 A check was conducted on 4 batteries to determine the typical lifespan of each battery when used in a toy car.
Each battery is expected to last for 5 hours.

Battery	A	B	C	D
Number of hours greater or less than the expected lifespan	−0.5	+1.2	−0.9	+1.7

(a) Find the actual lifespan of battery C.

Answer ....hours [1]

(b) Find the average lifespan of the four batteries.

Answer ....hours [2]

[Turn over

12   The perimeter of a rectangular field is $(5x+11y-8)$ m.
     The breadth of the rectangular field is $(2x+4y-2)$ m.

(a) Find an expression, in terms of x and y, for the length of the rectangle.

Answer .... [3]

(b) It is given that $x=4$ and that the breadth of the rectangle is 14 m. Find the area of the rectangle.

Answer ....m² [4]

(c) The cost to fence the field is \$9.50 per metre. Find the total cost of fencing the rectangular field.

Answer \$................................ [2]

13 Tom, Jane and Harry had a dinner in a restaurant. They ordered $108 worth of food and decided to pay for the dinner in the ratio of 4 : 2 : 3. The total bill of the dinner is inclusive of a 10% service charge and a Goods and Services Tax (GST) of 8%.

(a) Calculate the total cost of the dinner inclusive of the service charge and GST.

Answer $................................ [2]

(b) Calculate how much more Harry had to pay compared to Jane.

Answer $................................ [2]

(c) If the restaurant offered a 15% discount, how much less would Tom have paid?

Answer $................................ [2]

END OF PAPER

BEDOK VIEW SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2023

CANDIDATE NAME

REGISTER NUMBER

CLASS

MATHEMATICS **4052/02**
Secondary 1 Express 05 October 2023
Paper 2 **1 hour 30 minutes**

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

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Answer **all** questions.
If working is needed for any question it must be shown with the answer.
Omission of essential working will result in loss of marks.
The use of an approved scientific calculator is expected, where appropriate.
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The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 50.

Total	

Parent's / Guardian's Signature: ....

[Turn over

Answer **all** the questions.

1   The cash price of a piano is \$6500. It is available on hire purchase by paying a 20% deposit of the cash price and 24 monthly payments of \$260.

   (a) Find the difference between the cash price and the hire purchase price.

   Answer \$ .... [2]

   (b) Express this difference as a percentage of the cash price.

   Answer .... % [2]

---

2   **(a)** If $a:b:c = 3:4:5$ and $a+b = 84$, find the value of $a+b-c$.

   Answer .... [2]

   (b) Given that $(x-y):(y-2x) = 2:3$, find $x:y$.

   Answer .... : .... [3]

[Turn over

3 Shanti Pereira won the 100-meter gold medal at the Asian Athletics Championships in July. Her blistering time of 11.20 seconds was a new national record for Singapore. Express Shanti's speed in km/h.

Answer .... km/h [2]

4 In the diagram, *PR* is parallel to *ST*, *QU* is parallel *RT*, angle $PQU = 56°$, angle $TSU = 120°$ and angle $QTR = 65°$.
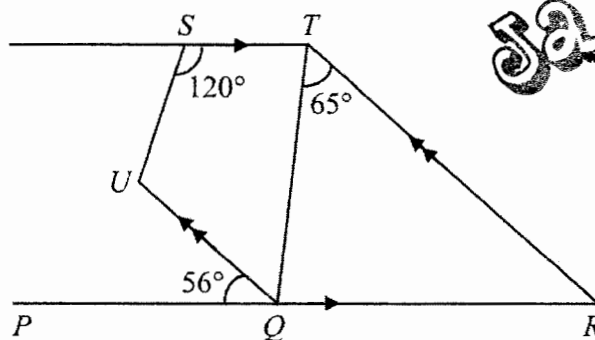
Stating your reasons clearly, calculate

(a) angle *QRT* ,

Answer .... ° [1]

(b) angle *QTS* ,

Answer .... ° [2]

(c) angle *QUS* .

Answer .... ° [2]

103

5　**(a)**　Construct triangle ABC such that $AB = 6.5$ cm and $BC = 7$ cm and angle $ABC = 124°$.

Answer

[2]

(b)　Measure the length of AC

Answer .... cm　[1]

(c)　D is a point in triangle ABC such that it is 5 cm from A and 7.5 cm from C. On the same diagram, construct and measure the length of BD.

Answer .... cm　[2]

[Turn over

6 **(a)** The size of the interior angle of a regular polygon is 4 times the size of its exterior angle. Find the number of sides of the polygon.

Answer .... sides [2]

(b) Tim claims that the exterior angle of a regular polygon cannot be 25°.
Explain why Tim is right.

Answer

[2]

7   The diagram below shows 4 circles that are drawn to fit into a rectangle.
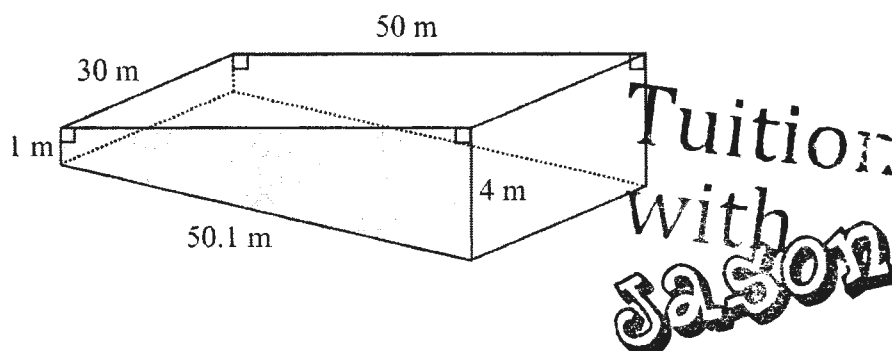   The radius of each circle is 7 cm.
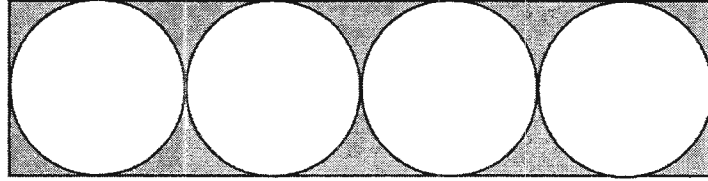
Find

(a) the perimeter of the shaded region,

Answer .... cm   [3]

(b) the area of the shaded region.

Answer .... cm² [2]

[Turn over

8 The diagram shows a swimming pool with a trapezium as its cross section.
The length and width of the pool are 50 m and 30 m respectively.
The depth of the pool is 1 m at its shallow end and 4 m at its deep end.

(a) Given that the pool is completely filled with water, find the total surface area of the pool that is **in contact** with the water.

Answer .... m² [3]

(b) Find the volume of the water in the pool.

Answer .... m³ [2]

9 The bar graph shows the number of friends that four students have respectively on a social media platform.

Number of friends on a social media platform
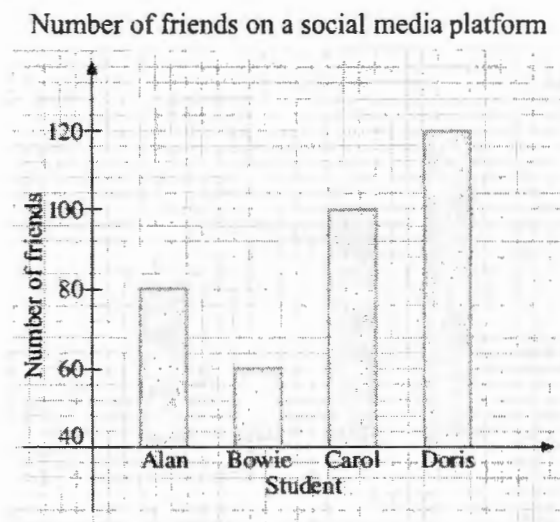
(a) Find the average number of friends these students have on the social media platform.

Answer .... [2]

(b) Find the ratio of the height of the bar representing the number of friends of Alan to that of Doris.

Answer .... : .... [1]

(c) By observing the graph, Doris said that her number of friends on the social media platform was twice as many as Alan's.
Explain why Doris is not correct.

Answer

....

.... [1]

[Turn over

10 Tom cycles from his house to his school at a usual speed 12 km/h.
   If he increases his speed to 25 km/h, he will reach his school 8 minutes earlier.
   The distance between Tom's house and his school is x km.

   (a) Express, in terms of x, the usual time Tom takes to cycle from his house to his
       school.

   Answer .... hours   [1]

   (b) Express, in terms of x, the time Tom takes if he cycles at the faster speed.

   Answer .... hours   [1]

   (c) Using your answers in parts **(a)** and **(b)**, form an equation, in terms of x, to
       describe the difference in time Tom takes to cycle from his house to his school.

   Answer ....   [1]

   (d) Solve the equation in part **(c)** to find the distance between Tom's house and his
       school.

   Answer .... km   [3]

11 The first four terms in a sequence are 5, 9, 13 and 17.

(a) Write down the 7th term in the sequence.

Answer .... [1]

(b) Find an expression, in terms of n, for the nth term in the sequence.
Write the expression in its simplest form.

Answer .... [2]

(c) Explain why 131 is not a term in the sequence. Show your working clearly.

Answer

[2]

END OF PAPER

Bedok View Secondary School

Mathematics Department   Marking Scheme

Year	2023	Level & Stream	1EXP
Type of Exam	EYE	Subject	Maths Paper 1

No.		Working	Remarks
1	(a)	(i) 52.8 [B1]	
		(ii) 1.00 [B1]	
	(b)	23, 29 [B1]	
	(c)	$2.3^2 , \dfrac{\pi}{3}, \dfrac{23}{25}, -0.25, -1$ [B2]	Deduct 1 mark for every error

[Total : 5m]

2	-1.28 (3s.f.) [B1]	

[Total : 1m]

3	(a)	$180 = 2 \times 2 \times 3 \times 3 \times 5$ [M1] $180 = 2^2 \times 3^2 \times 5$ [A1]	M1 for any appropriate method
	(b)	$p = 2 \times 3 \times 5^2$ $p = 150$ [B1]	

[Total : 3m]

Bedok View Secondary School

Mathematics Department   Marking Scheme

4	$-\dfrac{4(x+2)}{5}-\dfrac{x}{4}$	
	$=\dfrac{-16(x+2)-5x}{20}$ [M1]	
	$=\dfrac{-16x-32-5x}{20}$ [M1]	
	$=\dfrac{-21x-32}{20}$ [A1]	

[Total : 3m]

5	$-6x-18xy$	Accept
	$=-(6x+18xy)$ [M1]	
	$=-6x(1+3y)$ [A1]	$6x(-1-3y)$

[Total : 2m]

6	(a)	$y=\dfrac{2x}{5}+3$	
		$y=\dfrac{2(-4)}{5}+3$	
		$y=1\dfrac{2}{5}$ [B1]	Accept 1.4
	(b)	$y=\dfrac{2x}{5}+3$	Accept $x=12\dfrac{1}{2}$
		$8=\dfrac{2x}{5}+3$	Deduct P if improper fraction
		$5=\dfrac{2x}{5}$ [M1]	
		$x=12.5$ [A1]	

[Total : 3m]

7	(a)	9 16 25 36	
		3^2 4^2 5^2 6^2	

Bedok View Secondary School

Mathematics Department   Marking Scheme

		$T_n = (n+2)^2$ [B2]	
	(b)	$(n+2)^2 = 100$ [M1] $n+2 = 10$ $n = 8$ [A1]	FT from 7(a)

[Total : 4m]

8	**(a)**	$5x + 3 = 1\dfrac{1}{2}$ $10x + 6 = 3$ [M1] $10x = -3$ $x = -\dfrac{3}{10}$ [A1]	Accept −0.3
	(b)	$\dfrac{2x+3}{2} + 1 = \dfrac{4+x}{2}$ $\dfrac{2x+3+2}{2} = \dfrac{4+x}{2}$ [M1] $2x + 5 = 4 + x$ $x = -1$ [A1]	

[Total : 4m]

9	Interest $= \dfrac{(35000)(3.75)(6)}{100}$ [M1] $= \$7875$ [M1] Total amount to return $= 35000 + 7875$ $\qquad\qquad\qquad\qquad = \$42875$ [A1]	

[Total : 3m]

10	**(a)**	S$1 = 103 ¥ S$5000 = 5000×103 [M1] $\qquad\qquad = 515000$ ¥ [A1]

Bedok View Secondary School

Mathematics Department   Marking Scheme

| | (b) | $110 ¥ = S\$ 1$

 $45000 ¥ = \dfrac{1}{110} \times 45000$ **[M1]**

 $= S\$ 409.09$ (2 d.p.) **[A1]** | |

[**Total : 4m**]

11	(a)	4.1 hours **[B1]**	
	(b)	Average $= \dfrac{4.5 + 6.2 + 4.1 + 6.7}{4}$ **[M1]** $= 5.375$ hours (exact) **[A1]**	No A1 if written as 5.38 (3 s.f.) Accept $5\dfrac{3}{8}$ hours

[**Total : 3m**]

12	(a)	Length $= \dfrac{5x + 11y - 8 - 2(2x + 4y - 2)}{2}$ $= \dfrac{5x + 11y - 8 - 4x - 8y + 4}{2}$ **[M1]** **[M1]** $= \dfrac{x + 3y - 4}{2}$ **[A1]**	
	(b)	$2(4) + 4y - 2 = 14$ **[M1]** $4y + 6 = 14$ $4y = 8$ $y = 2$ **[M1]** Area $= \dfrac{14(4 + 6 - 4)}{2}$ **[M1]** $= 42$ m² **[A1]**	FT to give method marks
	(c)	Perimeter $= 5(4) + 11(2) - 8$ **[M1]** $= 34$ m Total Cost $= 34(9.50)$ **[M1]** $= \$323$ **[A1]**	FT to give method marks

[**Total : 9m**]

Bedok View Secondary School

Mathematics Department   Marking Scheme

13	(a)	Total Cost after service tax and GST$=108\times1.1\times1.08$ $= \$128.30$ (2 d.p.) **[A1]**	
	(b)	Amount Harry has to pay more $= \dfrac{1}{9}\times128.30$ **[M1]** $= \$14.26$ (2 d.p.) **[A1]**	
	(c)	Savings $= 108\times\dfrac{4}{9}\times0.15\times1.1\times1.08$ **[M1]** $= \$8.55$ (2.d.p) **[A1]**	FT from (a)

[Total : 6m]

BEDOK VIEW SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2023

CANDIDATE NAME

MARKING SCHEME

REGISTER NUMBER

CLASS

MATHEMATICS
Secondary 1 Express
Paper 2

4052/02
October 2023
1 hour 30 minutes

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The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 50.

Total	

Setter: Ms Sherine Wong   **Parent's / Guardian's Signature:** ....

This document consists of **11** printed pages.

[**Turn over**

2

Mathematical Formulae

Compound Interest

$$\text{Total amount} = P\left(1+\frac{r}{100}\right)^{n}$$

Mensuration

$$\text{Curved surface area of a cone} = \pi r l$$

$$\text{Surface area of a sphere} = 4\pi r^{2}$$

$$\text{Volume of a cone} = \frac{1}{3}\pi r^{2}h$$

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^{3}$$

$$\text{Area of triangle } ABC = \frac{1}{2}ab\sin C$$

$$\text{Arc length} = r\theta, \text{ where } \theta \text{ is in radians}$$

$$\text{Sector area} = \frac{1}{2}r^{2}\theta, \text{ where } \theta \text{ is in radians}$$

Trigonometry

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^{2} = b^{2} + c^{2} - 2bc\cos A$$

Statistics

$$\text{Mean} = \frac{\sum fx}{\sum f}$$

$$\text{Standard Deviation} = \sqrt{\frac{\sum fx^{2}}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^{2}}$$

3

Answer **all** the questions.

1 The cash price of a piano is $6500. It is available on hire purchase by paying a 20% deposit of the cash price and 24 monthly payments of $260.

(a) Find the difference between the cash price and the hire purchase price.

Hire purchase price
$= 6500 \times 20\% + 24 \times 260$ **[M1]**
$= 7540$

Difference
$= 7540 - 6500$
$= \$1040$

Answer $ 1040   **[A1]**   [2]

(b) Express this difference as a percentage of the cash price.

Required percentage
$= \dfrac{1040}{6500} \times 100$ **[M1FT]**
$= 16\%$

Answer 16 %   **[A1]**   [2]

2 (a) If $a:b:c = 3:4:5$ and $a+b = 84$, find the value of $a+b-c$.

7 units ----- 84
1 unit ----- 12   **[M1]**
$a+b-c$
$= 84 - 5(12)$
$= 24$

Answer 24   **[A1]**   [2]

(b) Given that $(x-y):(y-2x) = 2:3$, find $x:y$.

$\dfrac{x-y}{y-2x} = \dfrac{2}{3}$

$3(x-y) = 2(y-2x)$ **[M1]**
$3x - 3y = 2y - 4x$
$7x = 5y$ **[M1]**
$\dfrac{x}{y} = \dfrac{5}{7}$

*Answer* 5 : 7   **[A1]**   [3]

[Turn over

4

3 Shanti Pereira won the 100-meter gold medal at the Asian Athletics Championships in July. Her blistering time of 11.20 seconds was a new national record for Singapore. Express Shanti's speed in km/h.

$$\frac{100 \text{ m}}{11.20 \text{ s}}$$

$$= \frac{100 \div 1000 \text{ km}}{11.20 \div 3600 \text{ h}} \quad \textbf{[M1]}$$

$$= 32.1428$$

$$= 32.1 \text{ km/h (3 s.f.)}$$

Answer 32.1 km/h   **[A1]**   [2]

---

4 In the diagram, *PR* is parallel to *ST*, *QU* is parallel *RT*, angle $PQU = 56°$, angle $TSU = 120°$ and angle $QTR = 65°$.
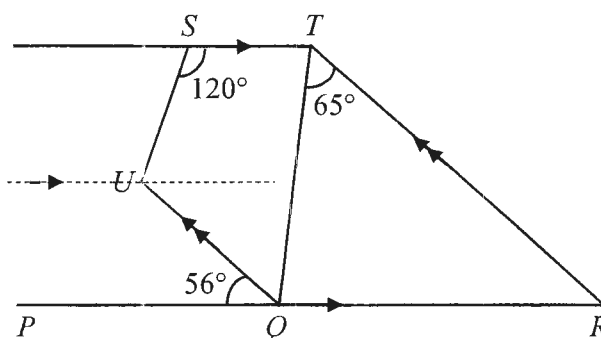
Stating your reasons clearly, calculate

(a) angle *QRT*,

angle *QRT* = angle *PQU* (corresponding angle)   **Deduct P for entire question**
        $= 56°$ **if incorrect/wrong reason**

Answer 56 °   **[B1]**   [1]

(b) angle *QTS*,

angle *QTS* = 180 – 56 – 65 (interior angle)   **[M1FT]**
        $= 59°$

Answer 59 °   **[A1]**   [2]

(c) angle *QUS*.

angle *QUS* = (180 – 120) + 56 (interior angle & alternate angle)   **[M1]**
        $= 116°$ or (angle sum of quadrilateral)

Answer 116 °   **[A1]**   [2]

5

5   (a) Construct triangle *ABC* such that *AB* = 6.5 cm and *BC* = 7 cm and
          angle *ABC* = 124°.
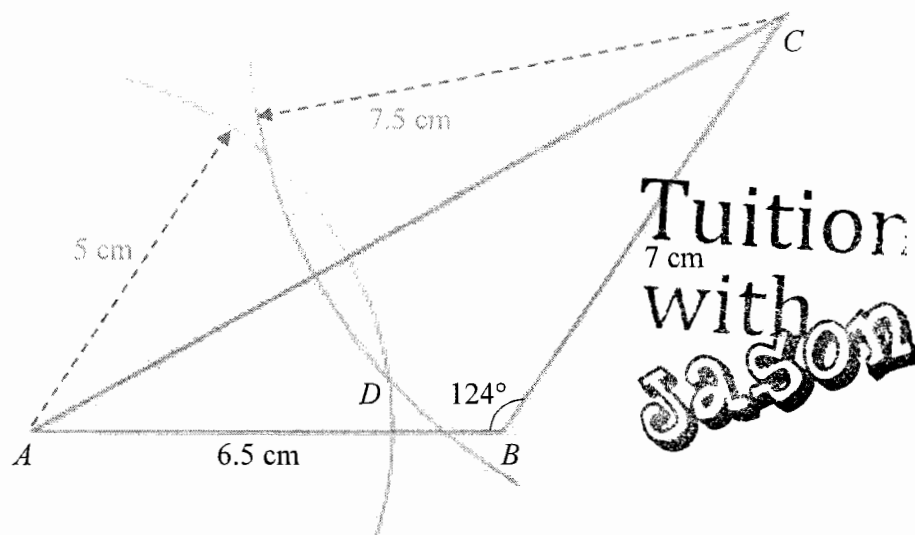
     Answer
          (a) [B1] Shape of triangle with obtuse angle
               [B1] All measurements are correct

          (c) [B1] Arcs with 5 cm & 7.5 cm radius centered at *A* & *C* respectively
               Deduct P if point *D* is not labelled

[2]

     (b) Measure the length of *AC*.

          Actual length is 11.922... cm.

                                        Answer 11.8 / 11.9 / 12.0 cm   **[B1]**   [1]

     (c) *D* is a point in triangle *ABC* such that it is 5 cm from *A* and 7.5 cm from *C*.
          On the same diagram, construct point *D* and measure the length of *BD*.

                                        Answer 1.7 / 1.8 cm   **[B1]**   [2]

                                                                          [Turn over

6

6　(a)　The size of the interior angle of a regular polygon is 4 times the size of its exterior angle. Find the number of sides of the polygon.

5 units ----- 180°　**[M1]**
1 unit ----- 36°
Size of exterior angle = 36°

Number of sides of the polygon
= 360 ÷ 36
= 10

Answer 10 sides　**[A1]**　[2]

(b)　Tim claims that the exterior angle of a regular polygon cannot be 25°.
Explain why Tim is right.

Answer

If exterior angle of regular polygon is 25°,
then the number of sides of the polygon is 360 ÷ 25 = 14.4.　**[M1]**
This cannot be true because it is not a whole number /
　　　　　　　　　　　it has to be a whole number.　**[A1]**
Hence Tim is right.

[2]

7   The diagram below shows 4 circles that are drawn to fit into a rectangle.
     The radius of each circle is 7 cm.
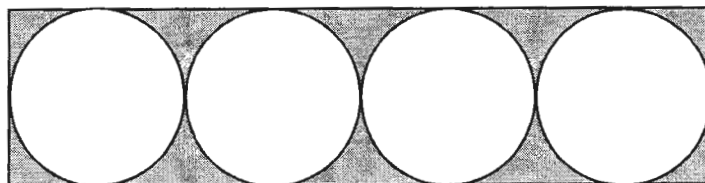
Find

(a) the perimeter of the shaded region,

Perimeter of the shaded region
= 2(length + breadth of rectangle) + 4 circles
= $2(14 + 4 \times 14) + 4(2\pi)(7)$ **[M1]** for rectangle   **[M1]** for circles
= $140 + 56\pi$
= 315.929
= 316 cm (3 s.f.)

Answer 316 cm   **[A1]**   [3]

(b) the area of the shaded region.

Area of the shaded region
= rectangle − 4 circles
= $14(56) - 4\pi(7^2)$ **[M1]**
= $784 - 196\pi$
= 168.247
= 168 cm^2 (3 s.f.)

Answer 168 cm^2 **[A1]**   [2]

8

8   The diagram shows a swimming pool with a trapezium as its cross section.
The length and width of the pool are 50 m and 30 m respectively.
The depth of the pool is 1 m at its shallow end and 4 m at its deep end.
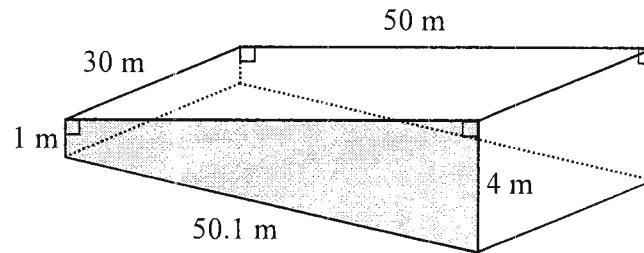
(a)   Given that the pool is completely filled with water, find the total surface area of the
pool that is **in contact** with the water.

Total surface area of the pool that is in contact with the water
= 2(cross section area) + shallow side + deep side + bottom of the pool

$$= 2(\frac{1}{2})(1+4)(50)+1(30)+4(30)+50.1(30)$$

$$= 1903 \text{ m}^2$$

[M1] cross section (trapezium) area
[M1] three rectangular areas

Answer 1903 m²   **[A1]**   [3]

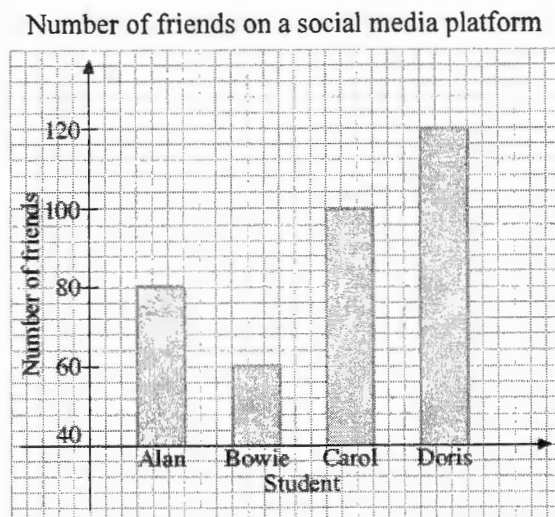**(b)**   Find the volume of the water in the pool.

Volume of the water in the pool

$$= \frac{1}{2}(1+4)(50)(30) \quad \textbf{[M1]}$$

$$= 3750 \text{ m}^3$$

Answer 3750 m³   **[A1]**   [2]

9

9 The bar graph shows the number of friends that four students have respectively on a social media platform.

Number of friends on a social media platform

(a) Find the average number of friends these students have on the social media platform.

Average number of friends
$$= \frac{80 + 60 + 100 + 120}{4} \quad \text{[M1]}$$
$$= 90$$

Answer 90 **[A1]**   [2]

(b) Find the ratio of the height of the bar representing the number of friends of Alan to that of Doris.

Answer 1 : 2 **[B1]**   [1]

(c) By observing the graph, Doris said that her number of friends on the social media platform was twice as many as Alan's.
Explain why Doris is not correct.

Answer

✓ The number of friends on the graph (vertical axis) does not start from 0.

✓ "Twice as many as Alan's" means 160. But Doris has only 120 friends.

   [B1] *Accept other reasonable explanations.*   [1]

[Turn over

10

10 Tom cycles from his house to his school at a usual speed 12 km/h.
    If he increases his speed to 25 km/h, he will reach his school 8 minutes earlier.
    The distance between Tom's house and his school is x km.

(a) Express, in terms of x, the usual time Tom takes to cycle from his house to his
     school.

Answer $\dfrac{x}{12}$ hours   **[B1]**   [1]

(b) Express, in terms of x, the time Tom takes if he cycles at the faster speed.

Answer $\dfrac{x}{25}$ hours   **[B1]**   [1]

(c) Using your answers in (a) and (b), form an equation, in terms of x, to describe the
     difference in time Tom takes to cycle from his house to his school.

Equation need not be simplified. Accept $\dfrac{x}{12} - \dfrac{8}{60} = \dfrac{x}{25}$ *or* $\dfrac{x}{25} + \dfrac{8}{60} = \dfrac{x}{12}$.

Answer $\dfrac{x}{12} - \dfrac{x}{25} = \dfrac{8}{60}$ **[B1]**   [1]

(d) Solve the equation in (c) to find the distance between Tom's house and his school.

$$\frac{x}{12} - \frac{x}{25} = \frac{8}{60}$$

$$\frac{25x - 12x}{300} = \frac{8}{60}$$ **[M1FT]** Rewrite equivalent fractions with common denominator

$$13x = 40$$ **[M1FT]** Both sides simplified

$$x = \frac{40}{13}$$

$$x = 3.08 \ (3 \text{ s.f.})$$

Answer 3.08 km **[A1]**   (Accept $3\dfrac{1}{13}$ km)   [3]

11

11 The first four terms in a sequence are 5, 9, 13 and 17.

(a) Write down the 7th term in the sequence.

21, 25, 29

Answer 29   **[B1]**   [1]

(b) Find an expression, in terms of n, for the nth term in the sequence.
Write the expression in its simplest form.

T_n
$= 5 + (n-1)(4)$ **[M1]**
$= 5 + 4n - 4$
$= 4n + 1$

Answer $4n + 1$ **[A1]**   **or [B2]**   [2]

(c) Explain why 131 is not a term in the sequence. Show your working clearly.

Answer

$4n + 1 = 131$
$4n = 130$ **[M1FT]** Solve n
$n = 32.5$

n must be a whole number.   **[A1]** Only with working

[2]

END OF PAPER