3815/1

BGCSE

School Number	Candidate Number
Surname and Initials	

MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Wednesday **18 MAY 2005** 1.00 – 2.30 P.M.

Additional materials:
calculator (NOT GRAPHING)
geometrical instruments

MINISTRY OF EDUCATION
NATIONAL EXAMINATIONS

BAHAMAS GENERAL CERTIFICATE OF SECONDARY EDUCATION

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Write your school number, candidate number, Surname and Initials in the spaces provided at the top of this page.

Answer ALL questions in the spaces provided for each question.

ALL working must be shown.

ALL working must be done in blue or black ink.

ALL constructions and drawings should be done with a pencil.

INFORMATION FOR CANDIDATES

Calculators [NOT GRAPHING CALCULATORS] may be used.

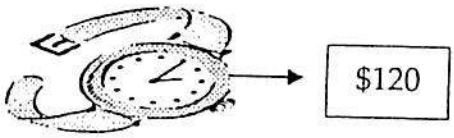
Geometrical instruments are required.

The mark for each question, or part question is shown in brackets [ ].

The total number of marks for this paper is 100.

This question paper consists of 17 printed pages and 3 blank pages.

1.

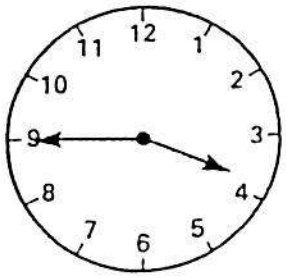


A watch costs $120. Mary made deposits of $29 and $36 towards the watch. How much is left to be paid?

Answer _____ [2]

---

2. The clock shows the time in the afternoon.



Write the time shown using

(a) 12-hour clock notation,

Answer _____ [1]

(b) 24-hour clock notation.

Answer _____ [1]

---

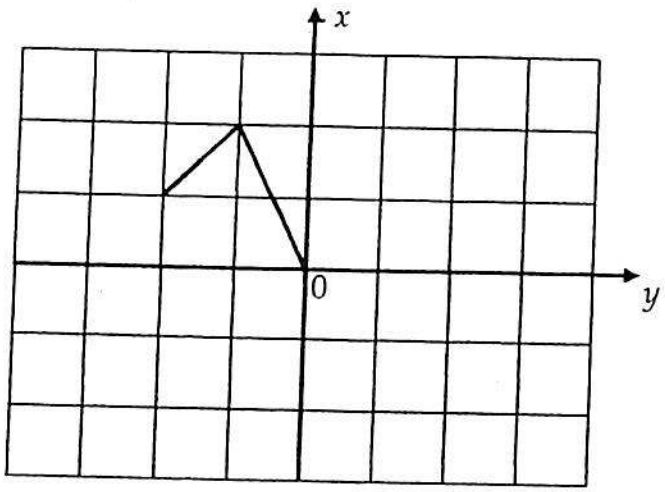
3. Simplify

$$8 \div 2 \times 5 + 3 - 4^2$$

Answer _____ [3]

---

4. Complete the diagram so that it is symmetrical about both the x axis and the y axis. [3]



5. The following is a useful calculation pattern. Study this pattern then use it to answer the questions below.

$2^2 - 1 = 1 \times 3$
$3^2 - 1 = 2 \times 4$
$4^2 - 1 = 3 \times 5$

(a) Write the next (4th) row of the pattern,

Answer _____ [1]

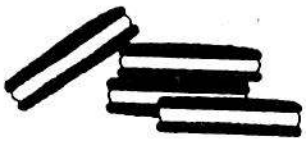
(b) complete the pattern $99^2 - 1 =$ _____ $\times$ _____

Answer _____ $\times$ _____ [1]

(c) evaluate $99^2 - 1$.

Answer _____ [1]

6.



In the *"Best Cookies"* factory, a machine makes 150 cookies every **minute**.

(a) How many cookies are made in a normal 8-hour shift?

Answer _____ cookies [2]

They are packaged in boxes of 36 cookies each.

(b) How many boxes would be filled during the shift?

Answer _____ boxes [2]

---

7. For the fractions $\frac{1}{2}, \frac{1}{3}, \frac{3}{4}, \frac{2}{5}$

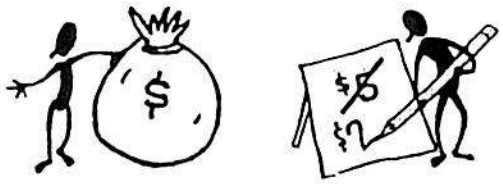
(a) write the Lowest Common Denominator (LCD),

Answer _____ [1]

(b) list the fractions in ascending order. (Show your working.)

Answer _____ [3]

8.



Two business partners, Mr. Adams and Mr. Brown, share profits in the ratio 5 : 7. This year, the total profits were $13,200.

(a) Calculate Mr. Adam's share.

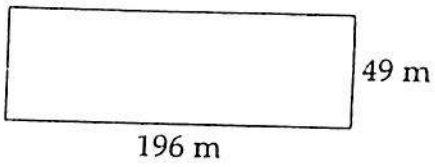
Answer $ _____ [2]

Last year, Mr. Brown received $4,200 as his share.

(b) Calculate the total profits for last year.

Answer $ _____ [2]

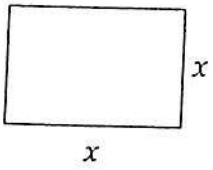
9. A rectangular field has length 196 m and width 49 m.



(a) Calculate the area of the rectangular field.

Answer _____ m^2 [2]

A square field has the same area as the rectangular field.



(b) Calculate the length of a side of the square.

Answer _____ m^2 [2]

---

10. **Cha**neka is a **sales** clerk. Last **week** her sales were \$830, \$644, \$583, \$896 and \$1,017.

(a) Calculate her total sales for that week.

Answer \$ _____ [1]

She earns a basic wage of \$120 plus 8% commission on weekly total sales over \$1,000.

(b) Calculate

(i) her commission,

Answer \$ _____ [3]

(ii) her total pay.

Answer \$ _____ [1]

11.

A car travelled at a speed of 72 km per hour.

Calculate

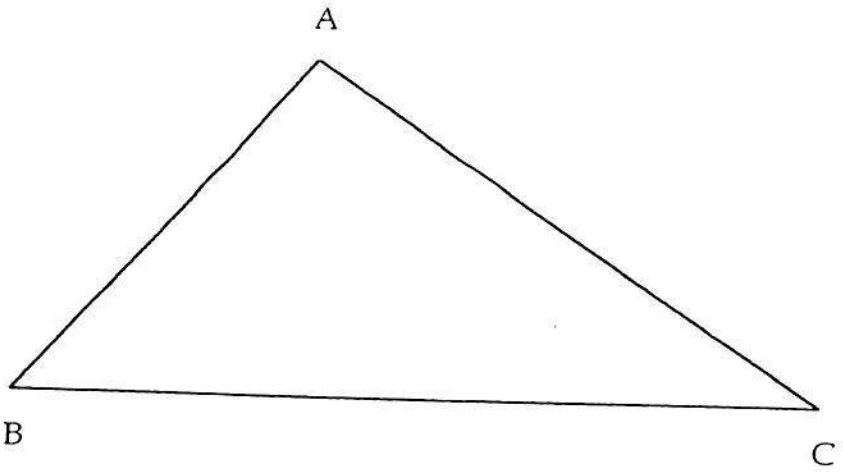
(a) the distance, in km, that the car travelled in $1\frac{3}{4}$ hours,

Answer _____ km [2]

(b) the time, in minutes, taken to travel 42 km.

Answer _____ minutes [3]

12.



(a) Measure and then write down the size of $\angle C$.

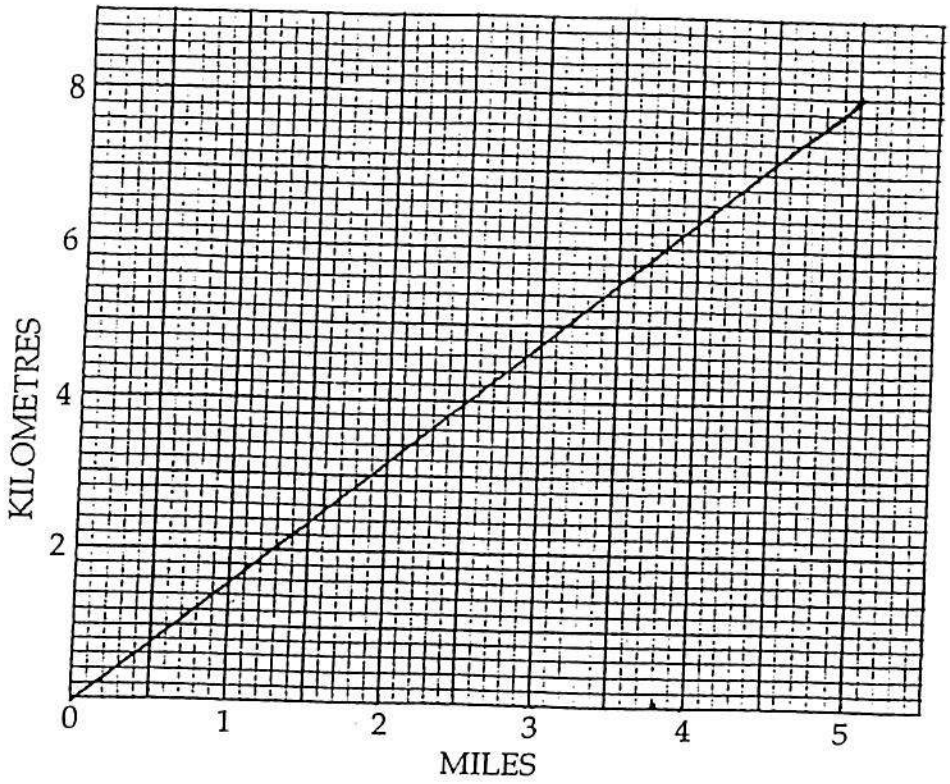
Answer _____ ° [1]

(b) Using a pencil, ruler and a pair of compasses only,

(i) bisect $\angle B$, [2]

(ii) bisect line BC. [2]

13.



The graph above is used to convert between miles and kilometres. Use it to answer the following questions.

(a) Convert 3.5 miles to kilometres.

Answer _____ km [1]

(b) Convert 6 kilometres to miles.

Answer _____ miles [1]

A walk-a-thon of 12 miles is planned for the long weekend.

(c) Convert this distance to kilometres

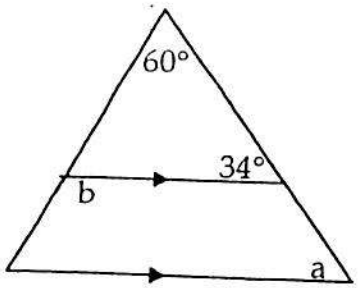
Answer _____ km [2]

Later it was discovered that the distance should have been given as 12 kilometres.

(d) Calculate the difference between 12 miles and 12 kilometres, giving your answer in miles.

Answer _____ miles [1]

14.



NOT TO SCALE

Calculate the size of

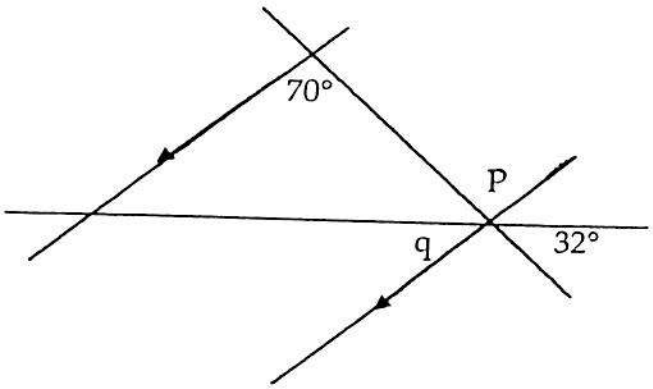
(a) (i) angle a,

Answer _____ ° [1]

(ii) angle b,

Answer _____ ° [2]

(b)



NOT TO SCALE

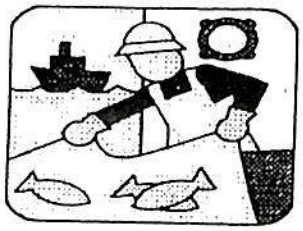
(i) angle p,

Answer _____ ° [1]

(ii) angle q.

Answer _____ ° [2]

15.



For the year 2003, The Department of Fisheries reported an export of 6,427,623 pounds of crawfish.

(a) Write this number correct to

(i) the nearest thousand,

Answer _____ [1]

(ii) two significant figures.

Answer _____ [1]

The value of the crawfish was listed as $87,928,570.

(b) ***Calcu***late the ***price per*** pound, ***to the ne***arest cent.

Answer $ _____ [2]

The total value of fishing exports for the year was $91,707,175.

Calculate the percentage of the total value that was crawfish. Give your answer to the nearest whole number.

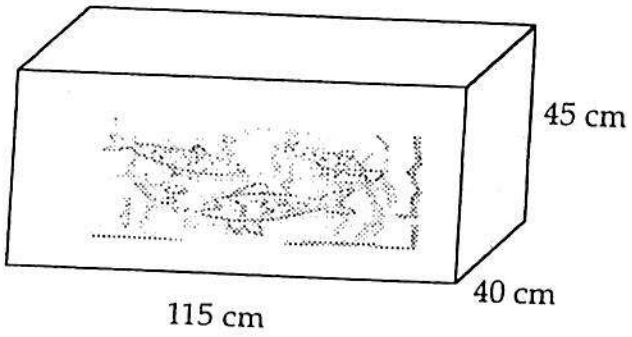
Answer _____ % [2]

16. (a) Complete the following conversions.

(i) 1.5 kg = _____ g [1]

(ii) 380 g = _____ mg [1]

(b)



Jason's aquarium is 115 cm long, 40 cm wide and 45 cm high.

(i) Calculate the volume of water it holds, in cm^3, when full.

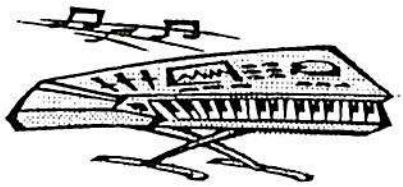
Answer _____ cm^3 [2]

Jason fills it with a bucket which holds 9 litres of water. (1 litre = 1000 cm^3).

(ii) Calculate the number of buckets needed.

Answer _____ [3]

17.



Dion bought a new keyboard on hire-purchase. The cash price was $2,398.25. He paid a 20% deposit followed by 24 monthly payments of $113.35 each. Calculate

(a) the amount of the deposit,

Answer $ _____ [2]

(b) the total amount of the monthly payments,

Answer $ _____ [2]

(c) the total hire-purchase price,

Answer $ _____ [2]

(d) the amount that can be saved by paying cash.

Answer $ _____ [2]

18.

t

$3 less than the T-shirt

3 times as much as the T-shirt

(a) At the school's FUN DAY, a T-shirt costs t dollars. A cap cost $3 less than the T-shirt. A school jacket costs three times as much as the T-shirt.

(i) Complete the table, expressing your answers in terms of t.

Item	Cost
T-shirt	t
Cap	
Jacket	

[1]

[1]

(ii) Write the total cost in simplest form in terms of t.

Answer $ _____ [2]

(b) Solve

$$4(x - 3) = 9$$

Answer _____ [3]

19. (a) Expand

$$8\left(x-\frac{1}{2}\right)$$

Answer _____ [2]

(b) Simplify

(i) $2ab - 7a + 8a + 3ab$

Answer _____ [2]

(ii) $3m^2 \times 4m \times 2$

Answer _____ [2]

(iii) $12y^5 \div 3y^2$

Answer _____ [2]

20. ε = {Whole numbers less than 10}
M = {Multiples of 3}
F = {Factors of 12}

(a) List the members of the set

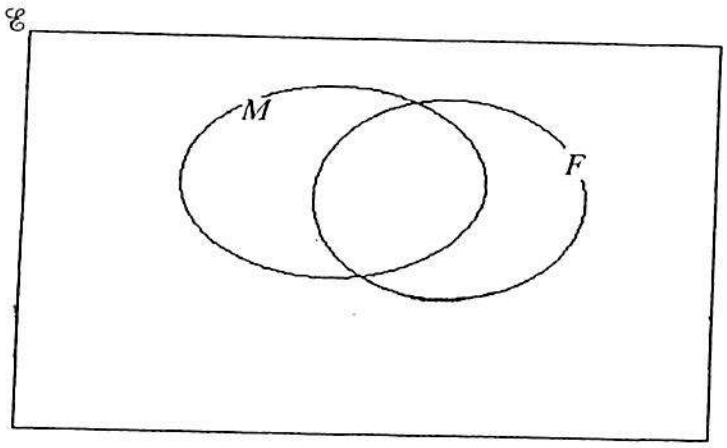
(i) M

Answer {_____} [1]

(ii) F

Answer {_____} [1]

(b) Represent the information in the Venn diagram below. [4]



Write down,

(c) the members of the complement of F,

Answer {_____} [1]

(d) $n(M \cup F)$.

Answer {_____} [1]

MATHEMATICS

PAPER 2 (CORE/EXTENDED) 3815/2

Friday **20 MAY 2005** 9.00 – 11.00 A.M.

Additional materials:
calculator (not graphing)
geometrical instruments
Answer booklet

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INFORMATION FOR CANDIDATES

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The mark for each question, or part question is shown in brackets [ ].

The total number of marks for this paper is 100.

1. An integer, n, is rounded to the nearest hundred to give 500. Write

(a) the smallest integer that n could be, [1]

(b) the largest integer that n could be. [1]

---

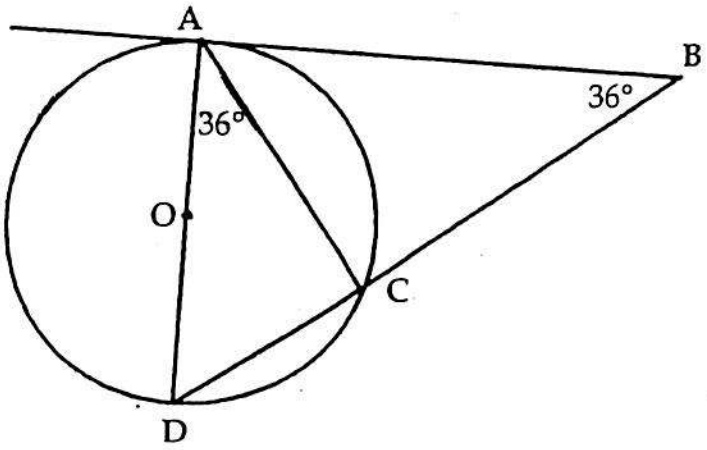
2. Express this ratio in its simplest form:

$$1 : \frac{1}{2} : \frac{3}{4}$$ [2]

---

3. A computer can do a calculation in 4×10^{-6} seconds. How long, in seconds, would it take the computer to do 8×10^{12} such calculations? (Give your answer in scientific notation/standard form). [3]

4.



NOT TO SCALE

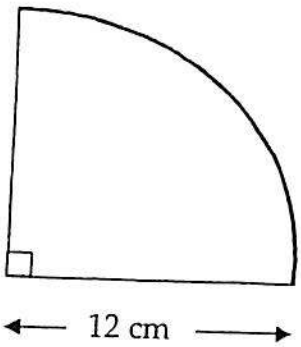
In the diagram, O is the centre of the circle ACD and AB is tangent to the circle at A. $\angle ABC = 36°$ and $\angle DAC = 36°$. Calculate the value of

(a) $\angle CAB$, [1]

(b) $\angle ACD$, [1]

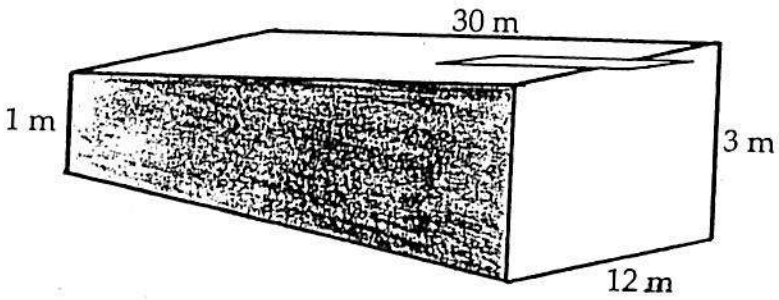
(c) $\angle ADC$ [1]

5.



The figure shows a quarter of a circle of radius 12 cm. Calculate the area of the figure. (Use $\pi = 3.14$) [3]

6.



The diagram represents a pool 30 m long and 12 m wide set in horizontal ground. The shallow end is 1 m and the deep end is 3 m. The cross-section (shaded area) is a trapezium. Calculate

(a) the area of the cross-section, [2]

(b) the volume of water in the pool. [2]

---

7. Solve

$$\frac{a-3}{2} = \frac{a}{5}$$ [4]

---

8. Simplify

(a) $7 - 2(3x + 4) + 9x$ [3]

Factorize completely

(b) $27x^2y - 9xy$ [2]

---

9. Two numbers, a and b, are such that $a > b$. Their sum is 49.

(a) Write an equation to represent this information. [1]

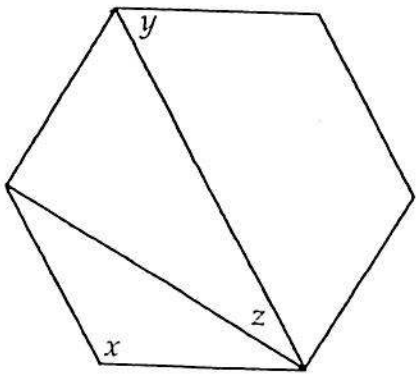
Their difference is 15.

(b) Write an equation to represent this information. [1]

(c) Solve your simultaneous equations to find the numbers a and b. [3]

---

10. The polygon below is a regular hexagon.



NOT TO SCALE

Calculate the size of the angle

(a) x, [2]

(b) y, [2]

(c) z. [2]

---

11. For the project in her Commerce class, Clarise tabulated the changes in a commodity on the stock market as follows:

$$4, 0, -1, 2, 4, -3, 1, 3$$

For this data, calculate

(a) the mean, [3]

(b) the median, [2]

(c) the mode. [1]

---

12. A formula for acceleration is:

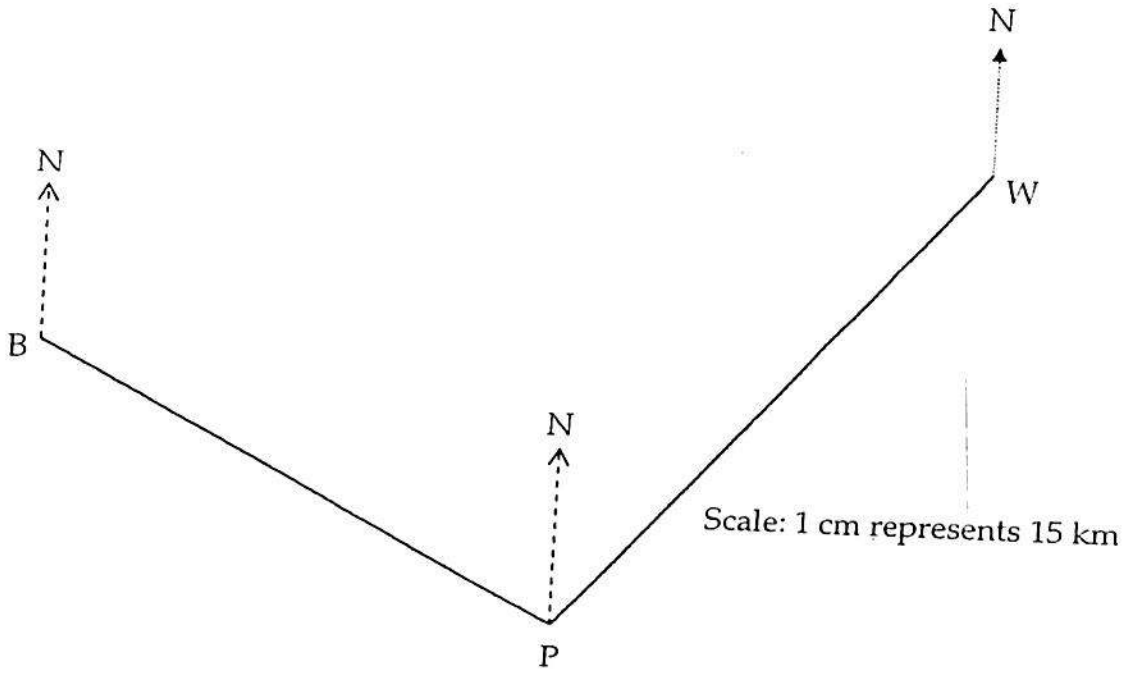
$$a = \frac{v^2 - u^2}{2s}.$$

(a) Find the value of a when $s = 27$, $v = 8$ and $u = 22.5$, giving your answer correct to one decimal place. [3]

(b) Rearrange the above formula to make u the subject. [3]

---

13. The diagram is a **scale drawing** of a mailboat excursion from Port B to Port P and on to Port W.



(a) Give the shortest distance (in km) between Port B and Port W. [2]

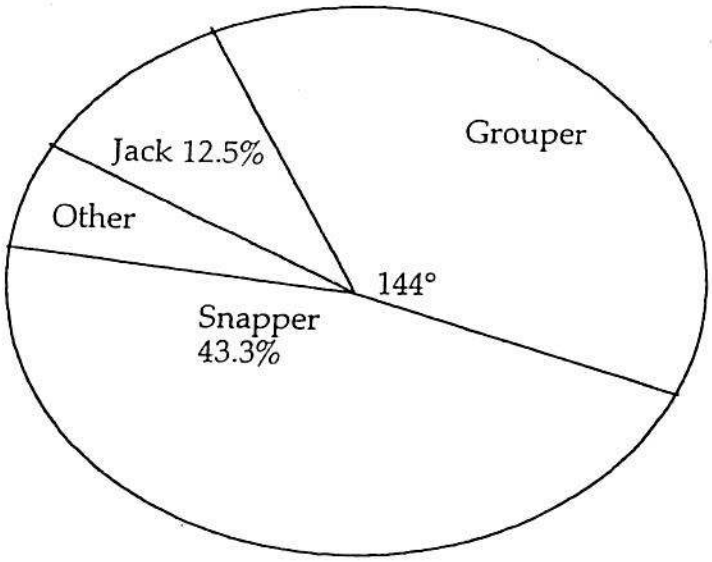
(b) **State the** bearing of **Port P** from Port B. [1]

(c) Calculate the bearing of Port B from Port P. [2]

An uninhabited Cay (not shown on the diagram) lies 97.5 km north of Port P.

(d) Give the length north from Port P that this would be on the scale drawing. [2]

14. The pie chart shows the type and comparative quantities of scale-fish landed in a year as recorded by the Department of Fisheries.



(a) Calculate

(i) the percentage for Grouper, [2]

(ii) the percentage for other types, [2]

(iii) the size of the angle that represents the sector for Jack. [2]

The actual amount of scale-fish landed was 1,750,000 pounds.

(b) Calculate the pounds of snapper landed, to the nearest 1000 pounds. [3]

15. **ANSWER THIS ENTIRE QUESTION ON THE GRAPH PAPER PROVIDED.**

Given below is the table of values for the equation $y = 2 - 3x$.

x	–2	–1	1	2
y	8		–1	

(a) Copy and complete the table of values. [2]

(b) Using a scale of 1 cm to 1 unit on each axis, draw the graph of the equation $y = 2 - 3x$. [3]

(c) Calculate the gradient of your graph in (b). [1]

(d) Another graph goes through the point (3, 4) and has a gradient of $\frac{2}{3}$. Draw the graph. [3]

(e) Write down the coordinates of the point where the lines intersect. [2]

---

16. **ANSWER THIS ENTIRE QUESTION ON THE GRAPH PAPER PROVIDED.**

(a) Using a scale of 1 cm to represent 1 unit on each axis, draw x and y axes from $-9 \leqslant x \leqslant 9$ and $-11 \leqslant y \leqslant 11$. Draw and label $\triangle ABC$ with A(2, 1), B(4, 2) and C(1, 4). [3]

(b) A rotation through 180° about the origin maps $\triangle ABC$ onto $\triangle A_1B_1C_1$. Draw and label $\triangle A_1B_1C_1$. [2]

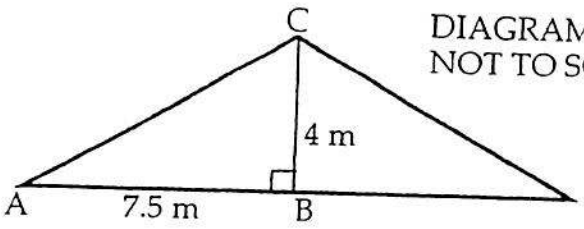
(c) $\triangle ABC$ is reflected in the line $x = -2$. Draw and label it $\triangle A_2B_2C_2$. [3]

(d) A translation of $\begin{pmatrix} 3 \\ -6 \end{pmatrix}$ maps $\triangle ABC$ onto $\triangle A_3B_3C_3$. Draw and label $\triangle A_3B_3C_3$. [2]

(e) $\triangle ABC$ is enlarged by a scale factor of 2, centre the origin. Draw and label the image $\triangle A_4B_4C_4$. [2]

---

17. Mr. Jones plans to build a house. The diagram shows the initial plan of the cross-section for the roof.



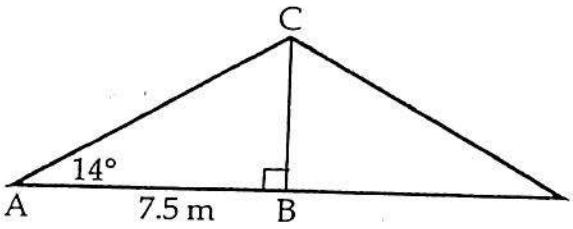
DIAGRAMS NOT TO SCALE

(a) Calculate

(i) the length AC, [3]

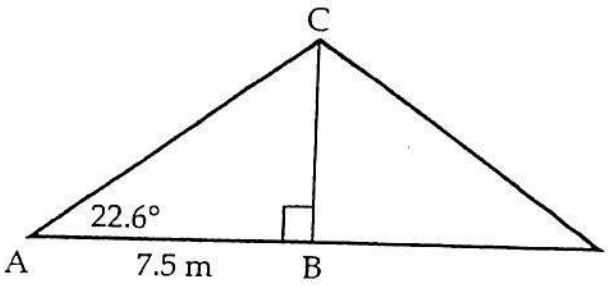
(ii) the angle of slope, ∠CAB. [3]

Mr. Jones considers the option of putting shingles on the roof. The building code requires that for shingles, the roof must have a slope of at least 14°.



(b) Calculate the least height that CB must be. [3]

In the end, Mr. Jones decides to install a Bermuda roof, which is less likely to be damaged in a hurricane. This roof is required to have a slope of at least 22.6°.



(c) Calculate the length of AC. [3]

MATHEMATICS

PAPER 3 (EXTENDED) 3815/3

Wednesday **25 MAY 2005** 9.00 – 11.30 A.M.

Additional materials:
calculator (not graphing)
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Answer booklet

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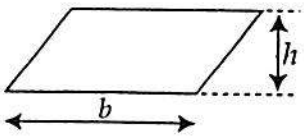
INFORMATION AND FORMULAE

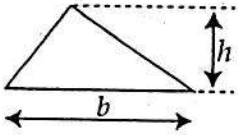
MENSURATION

Parallelogram



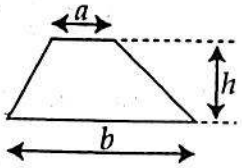
Area = bh

Triangle



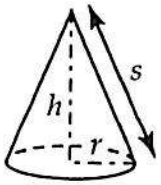
Area = $\frac{1}{2}bh$

Trapezium



Area = $\frac{1}{2}(a+b)h$

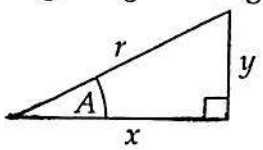
Cone



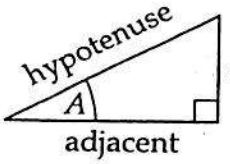
Circle (radius r, diameter d)	Circumference	$= 2\pi r$ or πd
	Area	$= \pi r^2$
Cylinder (radius r, height h)	Volume	$= \pi r^2 h$
	Area of curved surface	$= 2\pi rh$
Sphere (radius r)	Volume	$= \frac{4}{3}\pi r^3$
	Area of surface	$= 4\pi r^2$
Prism	Volume	= area of cross-section × length
Pyramid	Volume	$= \frac{1}{3}$ × area of base × height
Cone (radius r, height h)	Volume	$= \frac{1}{3}\pi r^2 h$
	Area of curved surface	$= \pi rs$
		where s = slant height $\sqrt{h^2 + r^2}$

TRIGONOMETRY

Right-angled triangle

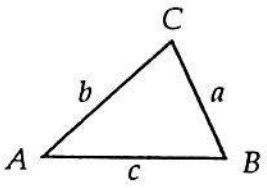


$r^2 = x^2 + y^2$ (result of Pythagoras)



$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}, \cos A = \frac{\text{adjacent}}{\text{hypotenuse}}, \tan A = \frac{\text{opposite}}{\text{adjacent}}$$

Any triangle



In any triangle ABC: $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

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

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

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

NUMBER

Standard form is $a \times 10^n$ where $1 \leqslant n < 10$ and n is an integer.

ALGEBRA

The quadratic equation $ax^2 + bx + c = 0$ has solutions

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The determinant of matrix $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is $ad - bc$.

The inverse of $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is $\dfrac{1}{ad-bc}\begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$

If $y = ax^n$, then $\dfrac{dy}{dx} = anx^{n-1}$

1. Two sets, A and B, are such that $n(A \cup B) = 10$ and $n(A) = 4$. Calculate

   (a) the smallest possible value of $n(B)$, [1]

   (b) the largest possible value of $n(B)$. [1]

---

2. Solve for x

$$5^{x-3} = 125$$ [3]

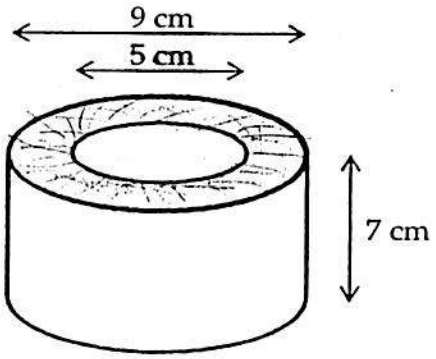
---

3. Give, in simplest form, the ratio

   (a) 2 cm : 1 m [1]

   (b) 60 cm^2 : 1 m^2 [2]

4.



NOT TO SCALE

A cylindrical casting of height 7 cm has an external diameter of 9 cm and internal diameter of 5 cm.

Calculate the volume of metal in the casting. (Use $\pi = \frac{22}{7}$) [4]

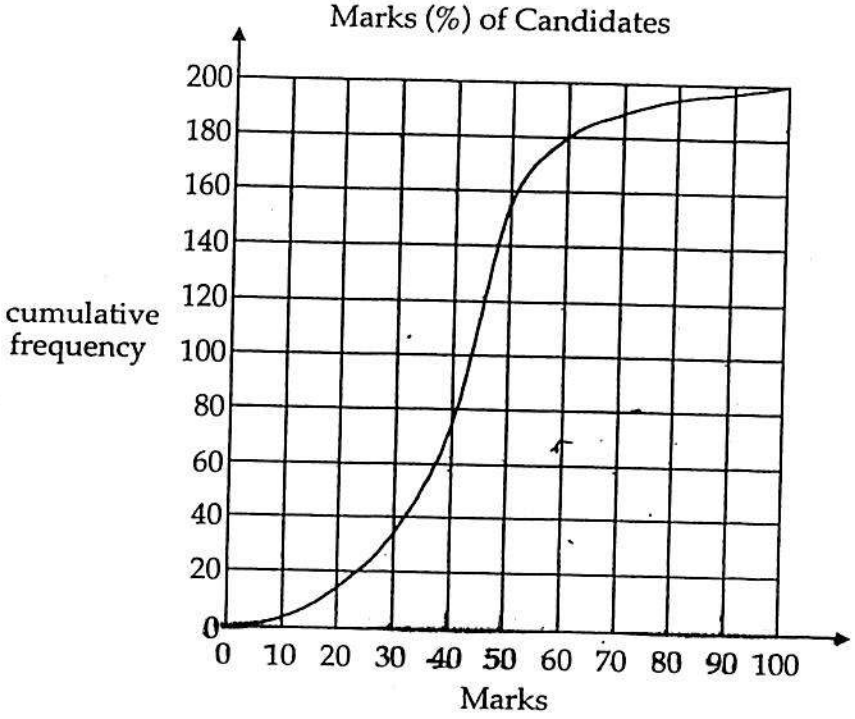
---

5. Solve for a and b.

$$\begin{pmatrix} 3 & a \\ b & - \end{pmatrix}\begin{pmatrix} 2 \\ 7 \end{pmatrix}=\begin{pmatrix} 6 \\ -5 \end{pmatrix}$$

[4]

6.



The cumulative frequency curve shows the distribution of marks of 200 candidates in a High School Mathematics examination.

From the graph, estimate

(a) the median mark, [1]

(b) the lower quartile, [1]

(c) the upper quartile, [1]

(d) the number of candidates who scored 60% or more. [2]

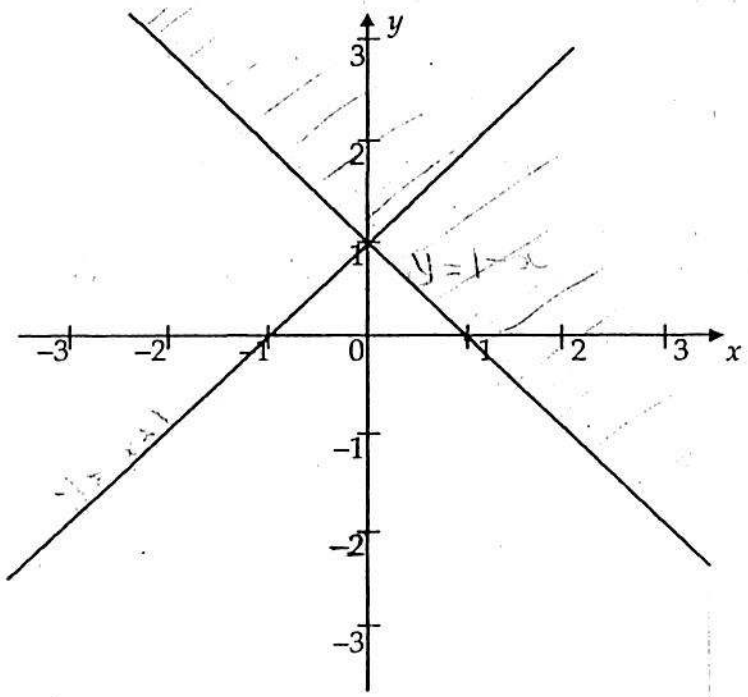
---

7. In **MARK'S SHOP**, the selling price of an item is determined by a standard mark-up of **40% of the Cost Price**. Calculate

(a) the selling price of an item costing \$70, [2]

(b) the cost price of an item selling for \$119. [3]

8.



The diagram shows the two lines $y = x + 1$ and $y = 1 - x$.

(a) **Sketch** a copy of the diagram and label each line with its correct equation. [2]

(b) On your diagram, shade the region in which the following three inequalities are satisfied.

$$\begin{cases} y \geqslant 0 \\ y \leqslant x+1 \\ y \geqslant 1-x \end{cases}$$ [3]

---

9. $\overrightarrow{OA}$ and $\overrightarrow{OB}$ are position vectors relative to the origin O.

Given the points $A(3, -1)$ and $B(-1, 2)$

(a) write $\overrightarrow{OA}$ and $\overrightarrow{OB}$ as column vectors, [2]

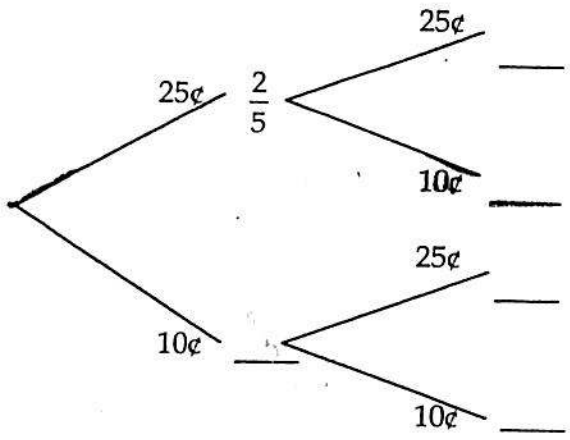
(b) express $\overrightarrow{AB}$ as a column vector, [2]

(c) calculate $\left|\overrightarrow{AB}\right|$, the magnitude of $\overrightarrow{AB}$. [2]

---

10. Peter has two 25¢ and three 10¢ coins in his pocket. He takes out two coins at random, one after the other without replacement.

(a) Copy and complete the tree diagram to show the possible outcomes. [3]



(b) Use your tree diagram to calculate the probability that

(i) he takes out two coins of the same kind, [2]

(ii) he is left with 45¢ in his pocket. [2]

---

11. Given that $f(x) = \frac{x-5}{2}$ and $g(x) = 2x + 1$, find

(a) $g\left(\frac{1}{2}\right)$, [1]

(b) x where $f(x) = 3$, [2]

(c) a simplified expression for $f(g(x))$, [3]

(d) $f^{-1}(x)$ [2]

---

12. (a) Write as a single fraction in simplest form.

(i) $\frac{x}{4} + \frac{x+2}{3}$ [3]

(ii) $\frac{7}{x-1} - \frac{5}{x}$ [3]

(iii) $\frac{6x}{y} \div \frac{2x^3}{y^2}$ [3]

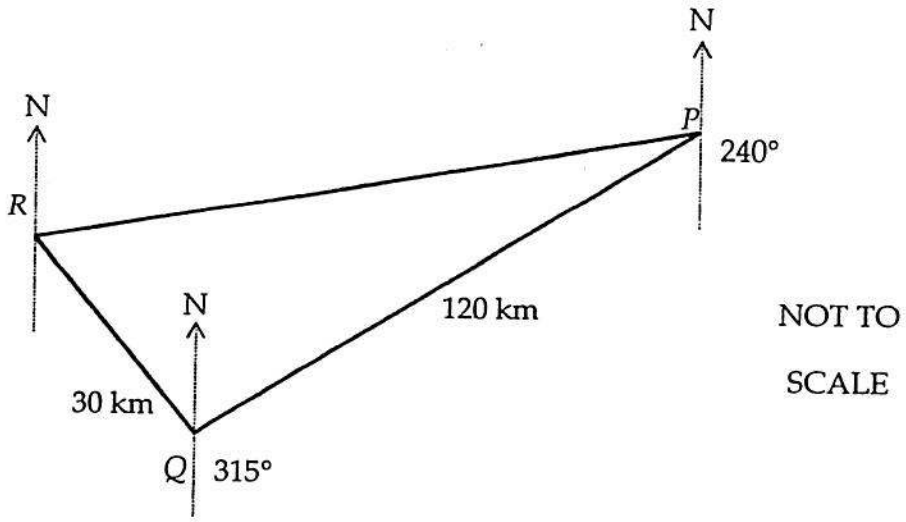
(b) Factorize completely,

(i) $6x^2 - x$ [1]

(ii) $x^2 - 5x + 6$ [2]

---

13. A mailboat sails 120 km from Port P to Port Q on a bearing of 240°. It then sails 30 km to Port R on a bearing of 315° before returning to Port P.



Calculate (a) $\angle PQR$, [2]

(b) the distance from Port R to Port P, [4]

(c) $\angle RPQ$, [4]

(d) the bearing of Port P from Port R. [2]

14. In July 2004, a tourist from Germany converted 2200 Euros (€) into Bahamian dollars (B) when the exchange rate was x € to \$1B.

(a) Write down an expression for the number of dollars she received. [1]

In August 2004, the tourist converted a further 2200 Euros into Bahamian dollars, but the rate of exchange had now altered to $(x - 0.2)$ € to \$1B.

(b) Write down an expression for the number of dollars she received in this second transaction. [1]

The tourist received \$100 more in August than in July.

(c) Write down an equation, in terms of x, to represent this difference. Show that it simplifies to $5x^2 - x - 22 = 0$. [5]

(d) Solve this equation to obtain the exchange rate in July. [5]

ANSWER THIS ENTIRE QUESTION ON THE GRAPH PAPER PROVIDED.

15. Given below is an incomplete table of values for the graph of $y = 6 - x^2$.

x	–4	–3	–2	–1	0	1	2	3	4
y	–10	.	2		6	5		–3	

(a) Copy and complete the table of values. [2]

(b) Using a scale of 1 cm to 1 unit on each axis, draw the graph of $y = 6 - x^2$. [3]

(c) (i) Draw the tangent to the curve at $x = -2$. [1]

(ii) Calculate the slope (gradient) at this point. [2]

(d) (i) On the same axes, draw the graph of $y = 2x$. [2]

(ii) Using your graphs, solve the equation $6 - x^2 = 2x$. [2]

End]

3815/1

BGCSE

School Number	Candidate Number
Surname and Initials	

MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Tuesday **23 MAY 2006** 1.00 – 2.30 P.M.

Additional materials:
calculator (not graphing)
geometrical instruments

MINISTRY OF EDUCATION
NATIONAL EXAMINATIONS

BAHAMAS GENERAL CERTIFICATE OF SECONDARY EDUCATION

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Write your school number, candidate number, Surname and Initials in the spaces provided at the top of this page.

Answer **ALL** questions in the spaces provided for each question.

ALL working must be shown.

ALL working must be done in blue or black ink, except for drawings, lines and constructions which may be done in pencil.

INFORMATION FOR CANDIDATES

Calculators [NOT GRAPHING CALCULATORS] may be used.

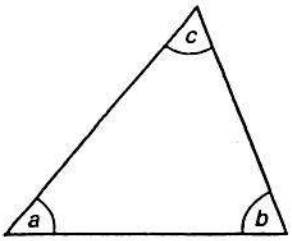
Geometrical instruments are required.

The mark for each question, or part question is shown in brackets [ ].

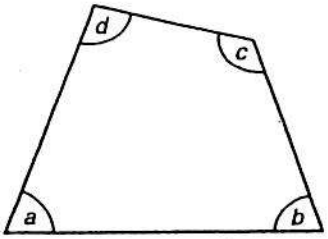
The total number of marks for this paper is 100.

This question paper consists of 20 printed pages and 4 blank pages

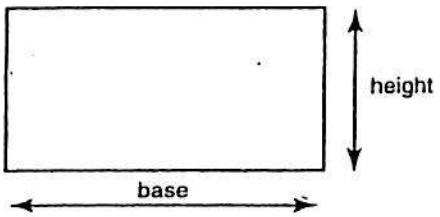
INFORMATION AND FORMULAE



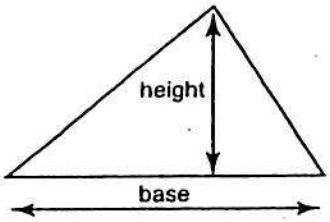
Angle sum of triangle
$a + b + c = 180°$



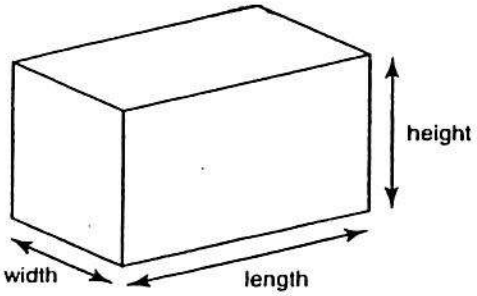
Angle sum of quadrilateral
$a + b + c + d = 360°$



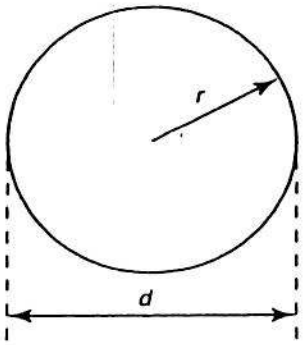
Area of rectangle = base × height



Area of triangle = $\frac{\text{base} \times \text{height}}{2}$



Volume of cuboid = length × width × height



Circumference of circle = $2\pi r$ or πd
Area of circle = πr^2

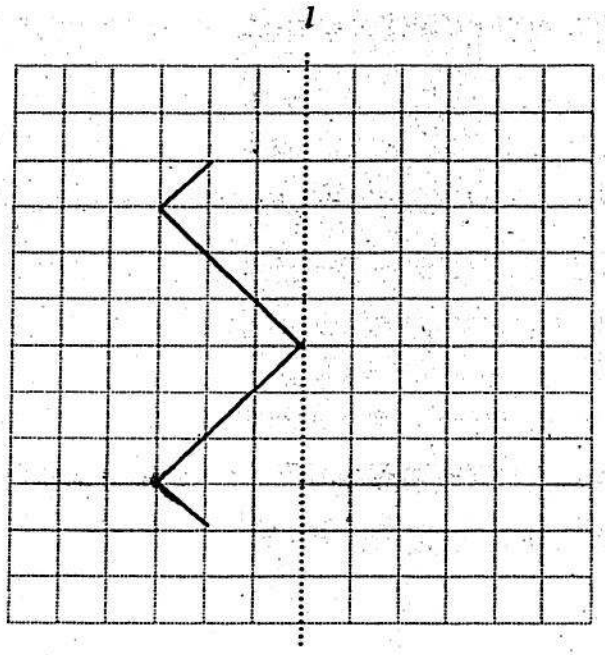
1. Fill in the blank spaces to complete the sequence,

37, _____ , 23, 16, 9, _____ ,

Answer _____ [2]

---

2. Complete the diagram so that it is symmetrical about the line ***l***.



[2]

---

3. Simplify

$$12 \div (7 - 3) + 4$$

Answer _____ [3]

---

4. Calculate the value of

$$7^2 - \sqrt[3]{125}$$

Answer _____ [3]

---

5. Divide the product of 44 and 25 by the sum of 27 and 28.

Answer _____ [3]

---

6. Complete the following conversions,

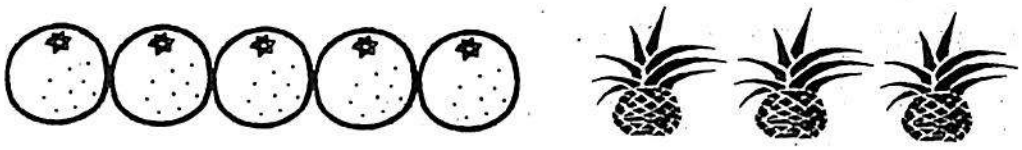
(a) 4900 ml = _____ l, [1]

(b) 5.7 **kg** = _____ g, [1]

(c) 2.4 m = _____ cm. [1]

---

7. A drink mixture contains orange juice and pineapple juice in the ratio 5:3.



Calculate the amount of

(a) pineapple juice in a drink mixture of 680 ml,

Answer _____ ml [2]

(b) orange juice when a drink mixture contains 45 ml of pineapple juice.

Answer _____ ml [2]

8. **Insert one of the symbols, <, > or =, into the boxes below to make the statements true.**

(a) $\frac{2}{3}$ ☐ 0.6 [1]

(b) $\frac{3}{7}$ ☐ $\frac{9}{12}$ [1]

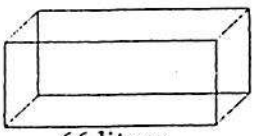
(c) 9% ☐ 0.9 [1]

(d) $\frac{3}{4}$ ☐ 70% [1]

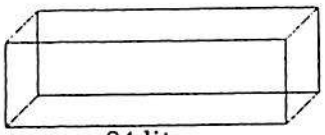
9. (a) Jack has only 10¢ coins. Kathy has only 25¢ coins. They both have the same amount of money. What is the smallest amount of money that each person could have?

Answer _____ [2]

(b)



66 litres



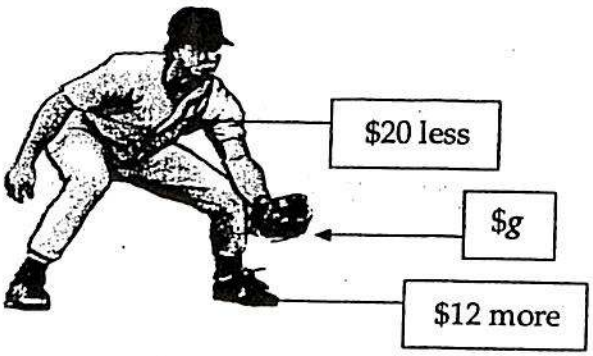
84 litres

NOT TO SCALE

Calculate the largest size bucket that can be used to exactly fill a 66 litre or 84 litre tank.

Answer _____ [2]

10.



Jason bought his baseball equipment for the new season. The glove costs g dollars. The uniform costs \$20 less than the glove. The shoes cost \$12 more than the glove. Write an expression in terms of g for

(a) the cost of the uniform,

Answer \$ _____ [1]

(b) the cost of the shoes,

Answer \$ _____ [1]

(c) the total cost of the equipment, giving your answer in simplest form.

Answer \$ _____ [2]

11.

Leaves at 8.40 a.m.

Arrives at 11.25 a.m.

Darnell's flight left New York at 8.40 a.m. and arrived in Nassau at 11.25 a.m.

(a) How long was her flight?

Answer _____ [2]

Darnell noted that it took another 45 minutes before she finally arrived at her home.

(b) At what time did she arrive at home?

Answer _____ [2]

12.

A 340 g jar of instant coffee sells for $7.65.

(a) Calculate the cost, in cents, of 1 g of coffee.

Answer _____ ¢ [2]

A 226 g jar of instant coffee sells for $5.65.

(b) State which jar is the better buy. Show your working to support your answer.

Answer _____ [2]

13. Solve the following equations.

(a) $7x - 4 = 31$

Answer $x =$ _____ [2]

(b) $\frac{y}{6} = \frac{3}{8}$

Answer $y =$ _____ [2]

14.

Linda borrowed \$2,100 from her bank at 9% simple interest per annum for two years. Calculate

(a) (i) the interest to be paid,

Answer \$ _____ [2]

(ii) the total amount to be repaid.

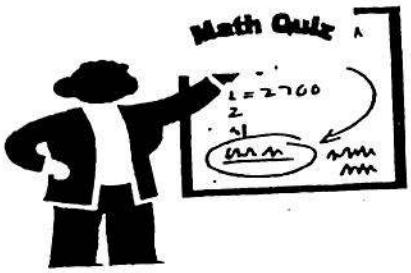
Answer \$ _____ [1]

Linda makes equal monthly payments on the total amount to be repaid during the time period of the loan.

(b) Calculate her monthly payment.

Answer \$ _____ [2]

15.



At the end of the school term, Karen noted that her mathematics quiz marks were $7, 9, 8\frac{1}{2}, 5, 7, 10, 9\frac{1}{2}$.

(a) Write down

(i) the mode,

Answer _____ [1]

(ii) the median.

Answer _____ [2]

(b) Calculate the mean.

Answer _____ [2]

16.

Overtime: Time and a half

Trevor is paid \$7.20 per hour for the first 40 hours worked in a week. Overtime is paid at time and a half.
Calculate his earnings for

(a) a regular 40-hour week,

Answer \$_____ [1]

(b) one hour of overtime,

Answer \$_____ [2]

(c) a 47-hour week.

Answer \$_____ [3]

17. (a) Express as a fraction in lowest terms,

(i) 5%

Answer _____ [2]

(ii) 0.625

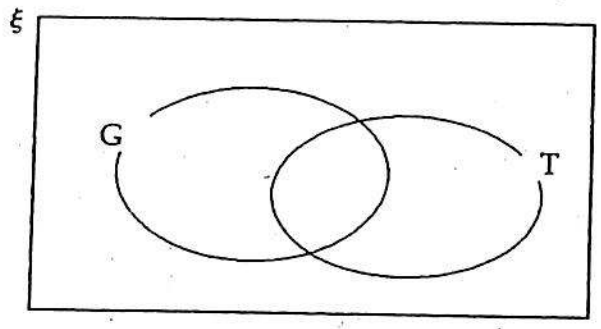
Answer _____ [2]

(b) Calculate the number of $2\frac{3}{8}$ inch pieces of wire that can be cut from a 95 inch coil (there is no wastage in cutting).

Answer _____ pieces [2]

18. For his class project, Donald did a survey on the newspapers, *Guardian* (G) and *Tribune* (T), read by his class. There are 32 students in the class. Eleven students read both papers. Sixteen read the *Guardian*. Seven read the *Tribune* only.

(a) Enter the above data in the Venn diagram below.



[4]

(b) Using the information in your Venn diagram, write the number of students who read

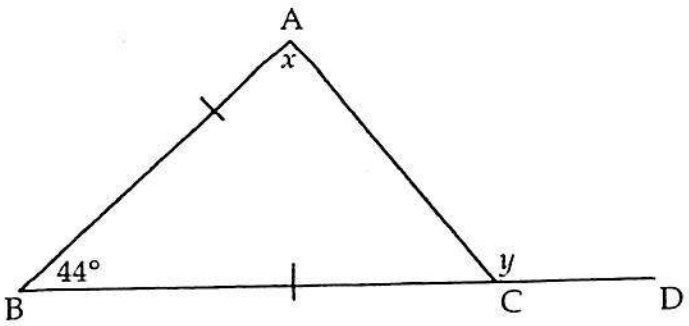
(i) only the *Guardian*,

Answer _____ [1]

(ii) neither the *Guardian* nor the *Tribune*.

Answer _____ [1]

19.



NOT TO SCALE

(a) Give the special name for triangle ABC.

Answer _____ [1]

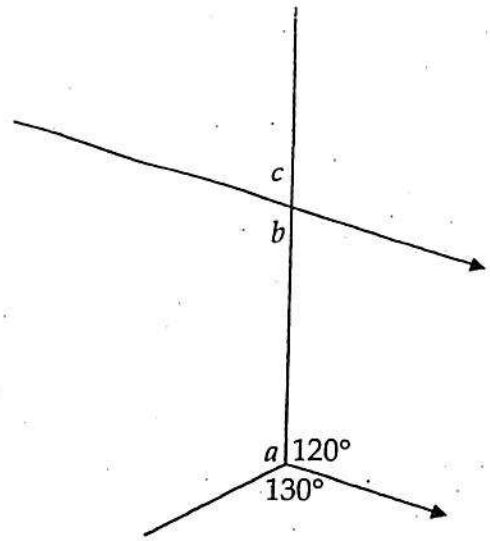
Calculate the size of

(i) angle x,

Answer _____° [2]

(ii) angle y.

Answer _____° [1]



(c) Calculate the size of

(i) angle *a*,

Answer _____° [1]

(ii) angle *b*,

Answer _____° [1]

(iii) angle *c*.

Answer _____° [1]

20. Simplify

(a) $5 + 3(2y - 4) + 7y$

Answer _____ [3]

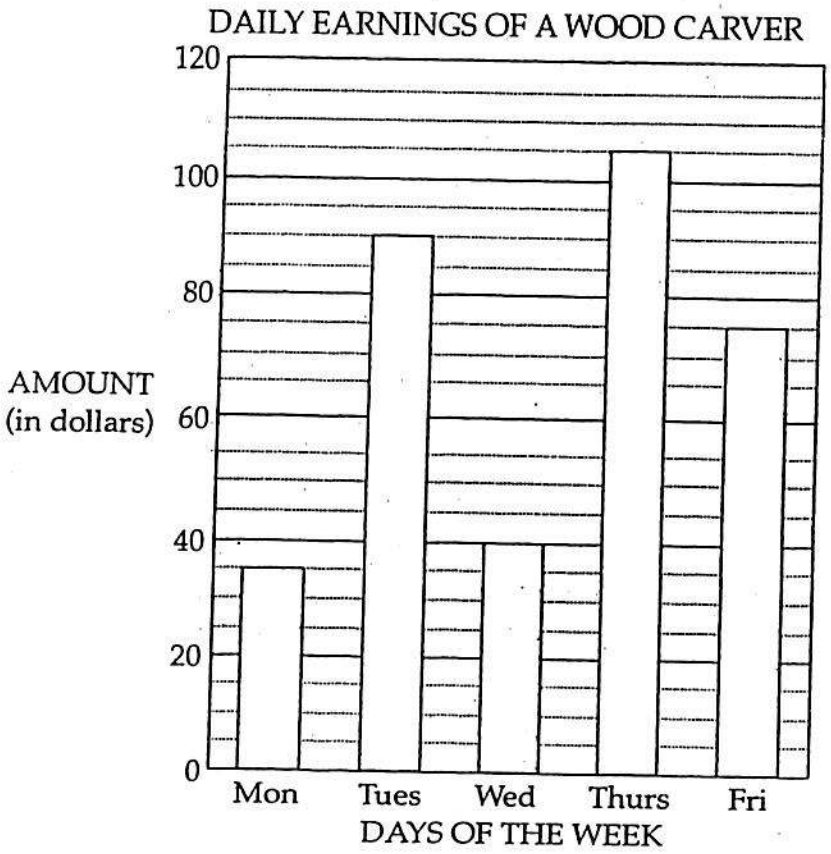
(b) $(5c^2)(3c^3)$

Answer _____ [2]

(c) $\frac{9a^2b}{12ab}$

Answer _____ [2]

21.



The chart shows the amount of money a wood carver made during a certain week.

(a) How much money did he make on the Friday?

Answer $ _____ [1]

(b) On which day did he make three times as much as he made on the Monday?

Answer _____ [1]

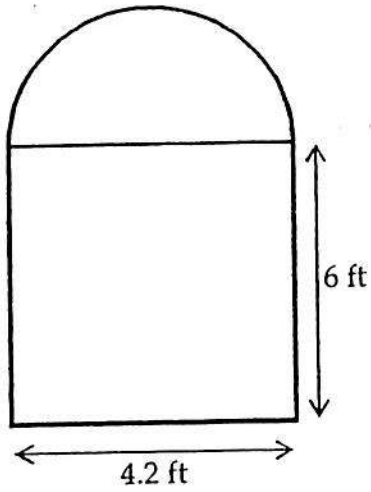
(c) Calculate the **total** amount that he made for the week.

Answer $ _____ [3]

(d) Calculate his average daily earnings for the five days.

Answer $ _____ [2]

22. This diagram represents a window which is a rectangle topped by a semi-circle.



NOT TO SCALE

Calculate the area of

(a) the rectangular section,

Answer _____ ft² [2]

(b) the semicircular section (use $\pi = 3.14$),

Answer _____ ft² [3]

(c) the entire window.

Answer _____ ft² [2]

End]