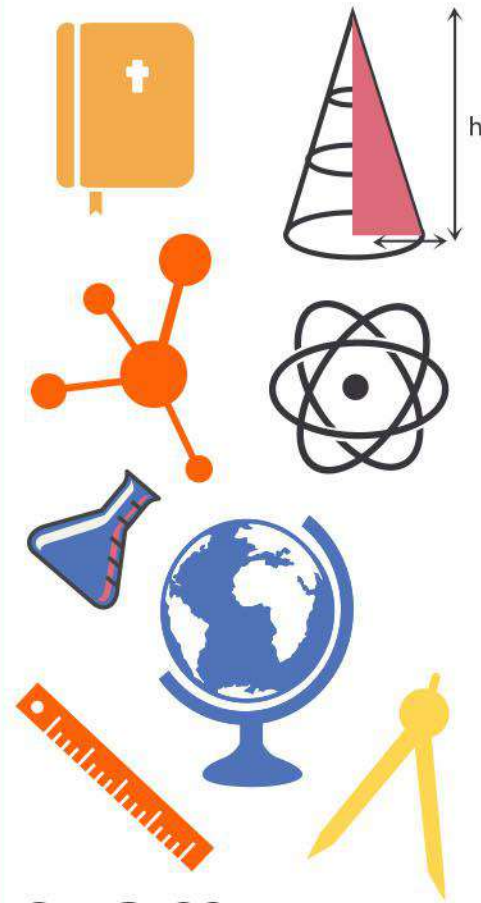


student **BGCSE** exam
Past Paper Booklet
Mathematics



More resources you might like...

GLAT • BJC • BGCSE
PAST PAPER ANSWER KEY BOOKS
Instant Download • PDF eBooks



Get Your Copy Today!

Live 1:1 Online Tutoring
for
GLAT, BJC,
BGCSE
and more...

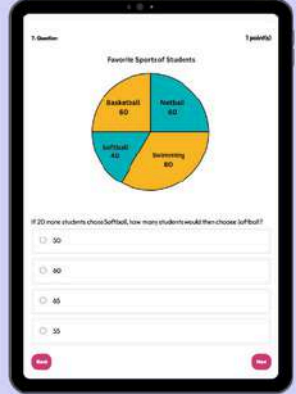


Swapadilly Learning

**JOIN
The Student Shed
FREE
Community**



Free BJC Math Check



Find your child's
weak areas in BJC Math

LEAP⁷

School Number	Candidate Number
Surname and Initials	

MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Tuesday **21 MAY 2024** 1:00 P.M.–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.

Tracing paper may be used.

Geometrical instruments are required.

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

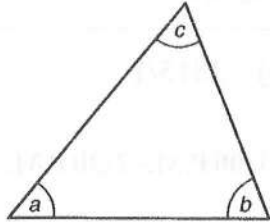
The total number of marks for this paper is 100.



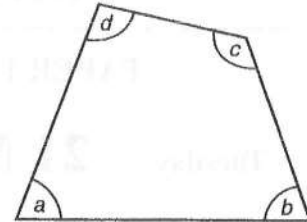
This question paper consists of 15 printed pages and 1 blank page.

INFORMATION AND FORMULAE

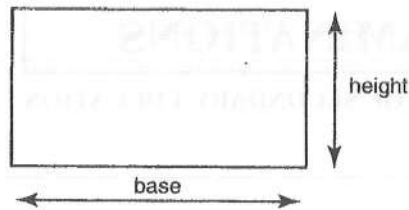
MENSURATION



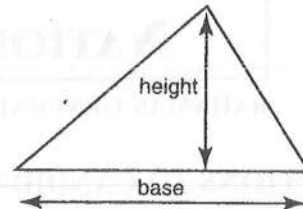
Angle sum of triangle
 $a + b + c = 180^\circ$



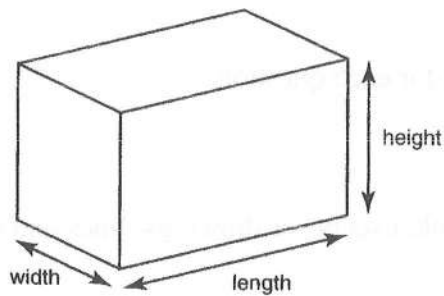
Angle sum of quadrilateral
 $a + b + c + d = 360^\circ$



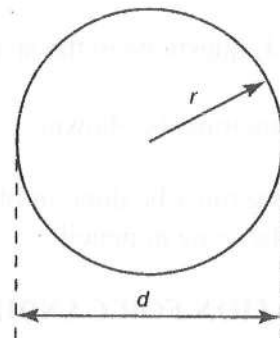
Area of rectangle = base $\times$ height



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



Volume of cuboid = length $\times$ width $\times$ height



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

NUMBER

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



1. (a) Write the missing values in the sequence

5, 8, _____, 14, 17, _____ [2]

- (b) State a prime number in the sequence above.

Answer: _____ [1]

2. Showing all working, evaluate

$$20 \div 4 \times 3 - 2^3$$

Answer: _____ [3]

3. If $p = -2$ and $q = 3$, find the value of $p^2 - 5q$.

Answer: _____ [3]

4. 20,000,000,000 ants live in a large colony.

- (a) Write this number in standard form.

Answer: _____ [1]

The total weight of the ant colony is 1.2×10^5 lbs.

- (b) Write this weight as an ordinary number.

Answer: _____ lbs [1]

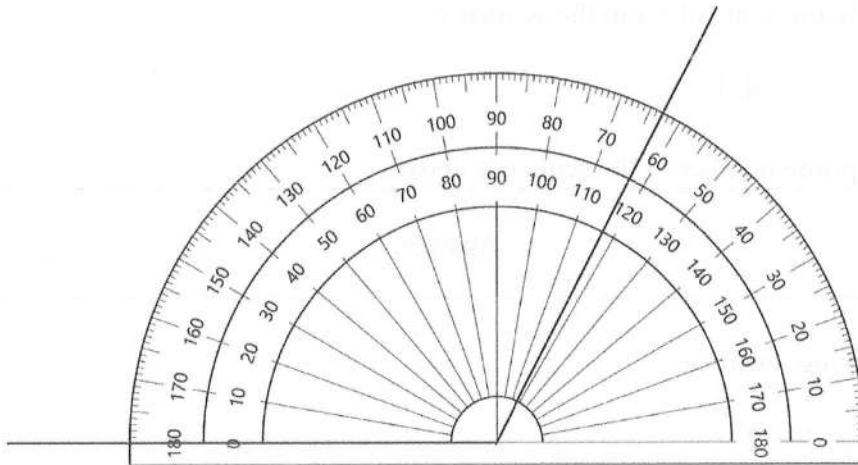
5. Convert each quantity to the unit indicated.

- (a) $4.7 \text{ g} =$ _____ mg. [1]

- (b) $6.9 \text{ m} =$ _____ cm. [1]

- (c) $80,000 \text{ cm} =$ _____ km. [1]
-

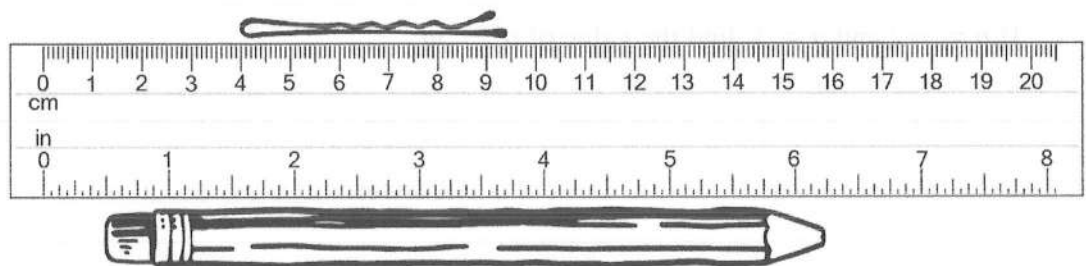
6. (a)



Write down the size of the angle shown in the diagram above.

Answer: _____° [1]

(b)



From the diagram above, find the length of

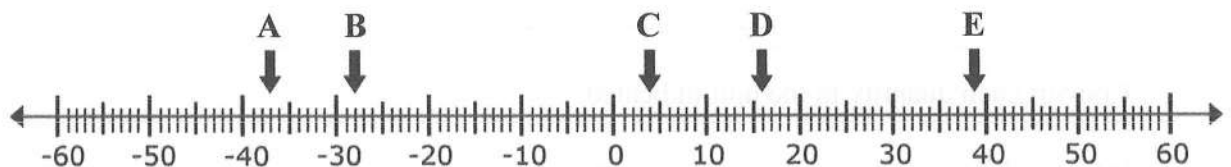
(i) the hairpin, in centimetres,

Answer: _____ cm [1]

(ii) the pencil, in inches.

Answer: _____ in [1]

7.



Using the number line above, find the value of

(a) E,

Answer: _____ [1]

(b) B - C,

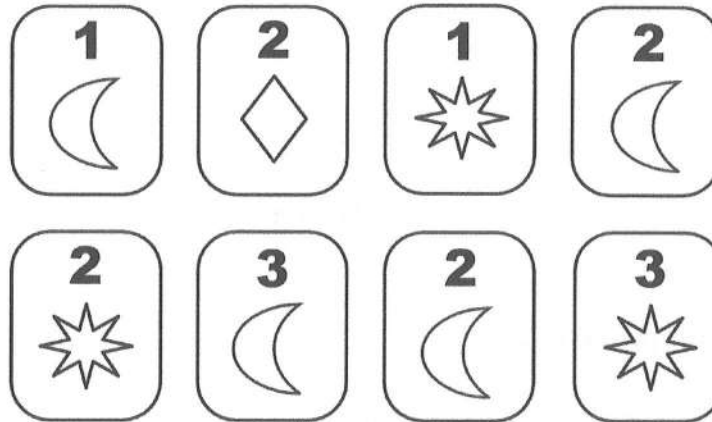
Answer: _____ [2]

(c) A + D.

Answer: _____ [2]



8. A set of cards is shown below.



If a single card is chosen at random from the set of cards shown, find the probability that it

- (a) has ,

Answer: _____ [1]

- (b) has **4**,

Answer: _____ [1]

- (c) does **not** have ,

Answer: _____ [1]

- (d) has both **2** and ,

Answer: _____ [1]

- (e) has either **1** or .

Answer: _____ [1]

9. Arrange the following values in ascending order.

$$\frac{5}{9},$$

55%,

$\tan 29^\circ$,

0.5

Answer: _____ [2]

10. 7 yards of fabric was purchased.

$3\frac{1}{4}$ yards of fabric is needed to cover a chair.

Find the amount of fabric left after two chairs are covered.

Answer: _____ yd [2]

11. Famous Punch consists of a mix of orange juice, pineapple juice and guava nectar in the ratio 3:4:2.

- (a) Calculate the number of gallons of guava nectar needed to mix 36 gallons of Famous Punch.

Answer: _____ gal [2]

A batch of Famous Punch used 20 gallons of pineapple juice.

- (b) Find the amount of punch that was made.

Answer: _____ gal [2]



12. (a) 6 concrete blocks weigh 228 lb.

Find the weight of 11 similar blocks.

Answer: _____ lb [2]

- (b) It takes eight workers seven days to build a wall.

At the same rate, find how many days it would take four workers to build a similar wall.

Answer: _____ days [2]

13. The weights of eleven cheerleaders are listed below in kilograms.

62, 61, 56, 64, 54, 55, 53, 62, 59, 60, 58

- (a) State the

- (i) mode,

Answer: _____ kg [1]

- (ii) range.

Answer: _____ kg [1]

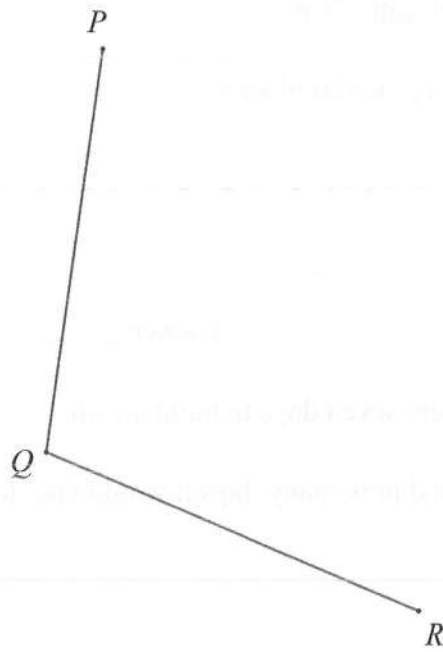
The heaviest cheerleader is benched due to injury.

- (b) Find the mean of the weights of the remaining cheerleaders.

Answer: _____ kg [2]

[Turn over

14.



- (a) Using a ruler and compasses only, bisect
- (i) $\angle Q$, [3]
 - (ii) QR . [3]
- (b) (i) Mark the point X where the bisectors above intersect. [1]
- (ii) Measure and write down the length of QX in cm.

Answer: _____ cm [1]



15. A Talent Show which lasted $2\frac{1}{4}$ hours ended at 8:10 p.m.

(a) Find the time the Talent Show started.

Answer: _____ p.m. [2]

It took a family 55 minutes to get home after the Talent Show ended.

(b) Give the time they arrived home.

Answer: _____ p.m. [1]

A Music Gala started at 6:35 p.m. and ended at 8:10 p.m.

(c) Find how long the Music Gala lasted.

Answer: _____ [2]

(d) Write 8:10 p.m. using the 24-hour clock.

Answer: _____ [1]

-
16. In 2004 the population of a town was 84,000.

By 2014 the population had increased by 14%.

(a) Work out the population of the town in 2014.

Answer: _____ [2]

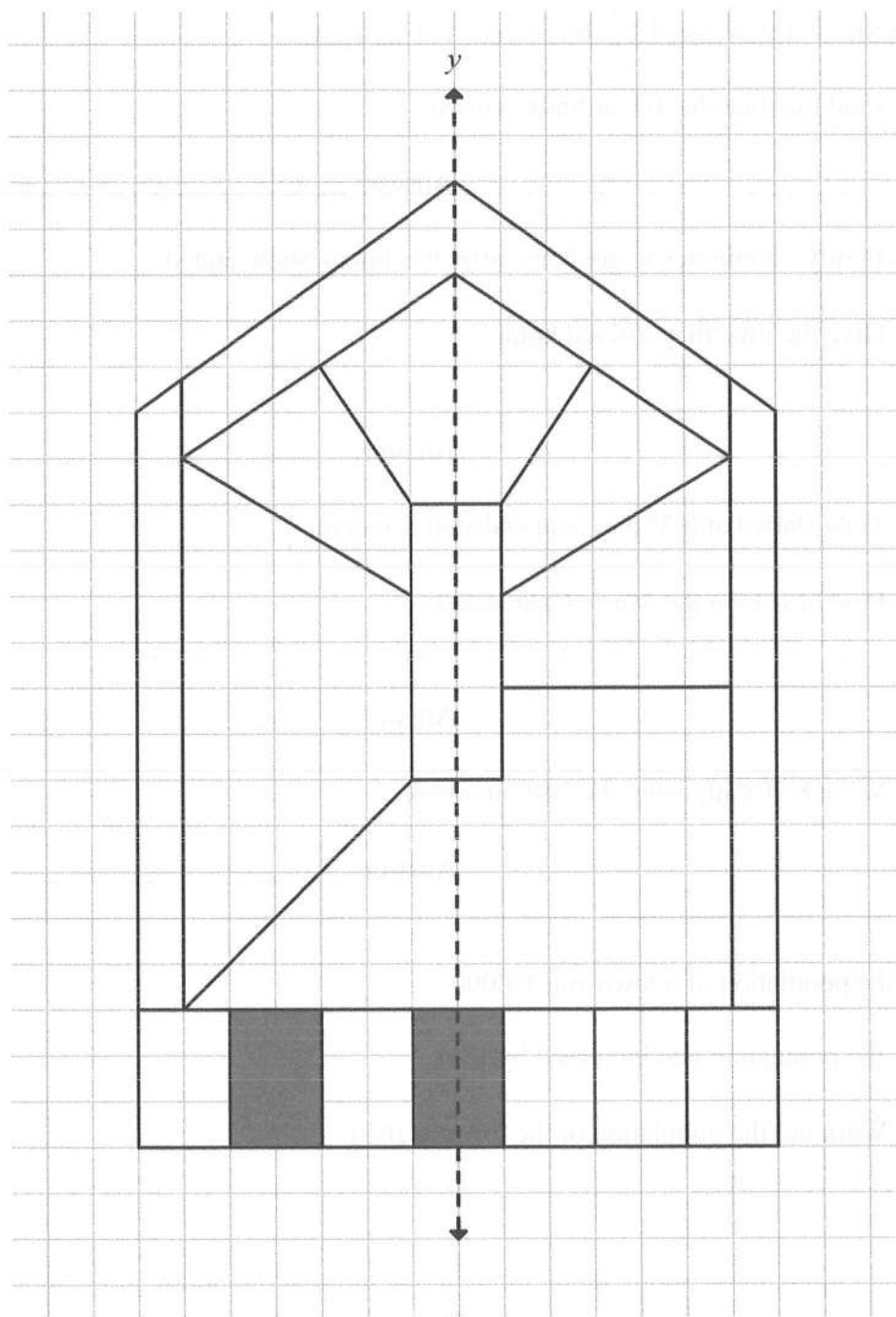
In 2014 the population of another town was 97,000.

By 2019 the population had dropped to 92,150.

(b) Determine the percentage decrease in the population.

Answer: _____ % [3]

17.

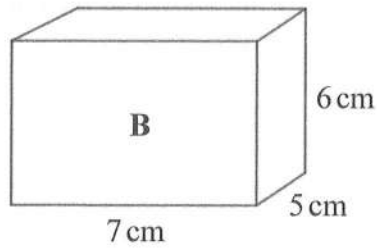
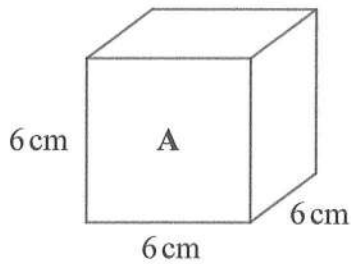


Complete the diagram above in such a way that it is symmetric about line y .

[3]



18. Container **A** is a cube and container **B** is a cuboid.



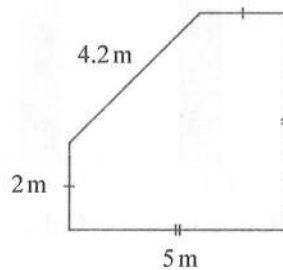
NOT TO SCALE

Find which container will hold the most water when full.

Show working to support your answer.

Answer: _____ [3]

19. The diagram below shows the plans for a school playground.



NOT TO SCALE

- (a) Find the length of fencing needed to enclose the playground.

Answer: _____ m [2]

The cost of fencing is \$46.50 per meter.

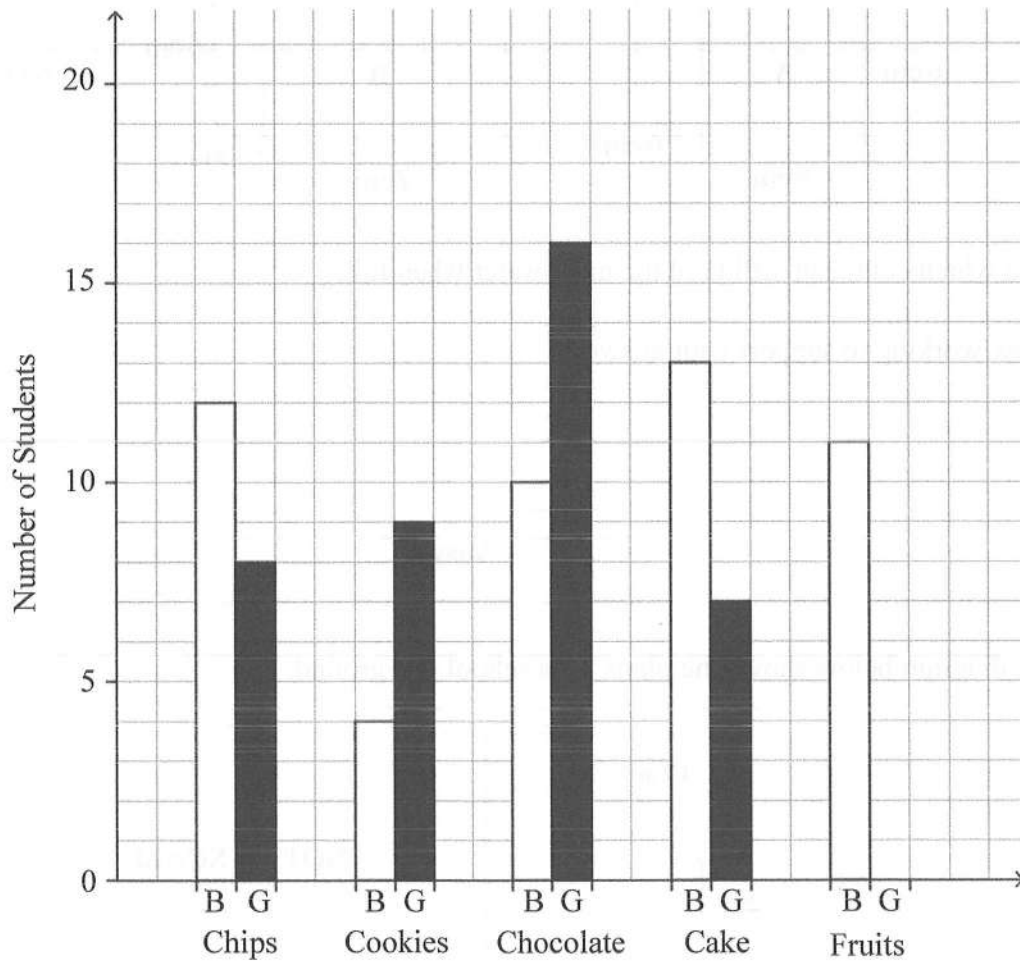
- (b) Calculate the total cost of fencing the playground.

Answer: \$ _____ [2]

[Turn over]

20. In a survey, 50 boys and 50 girls were asked which is their favourite snack.

The results of the survey are shown in the bar chart below.



- (a) Complete the chart by drawing the bar representing the number of girls who liked fruits. [2]

- (b) State the number of boys that liked chocolate.

Answer: _____ [1]

- (c) Determine the favourite snack of the boys.

Answer: _____ [1]

- (d) Calculate the difference between the number of girls and boys that favour cookies.

Answer: _____ [2]



21. Simplify the following

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

Answer: _____ [2]

(b) $-4(6m - 3n + 1)$

Answer: _____ [3]

(c) $6m^2n^4 \times 7m^3n^{-3}$

Answer: _____ [3]

(d) $36x^5y^3 \div 9x^2y$

Answer: _____ [3]

22. Solve

(a) $5x + 6 = 14$

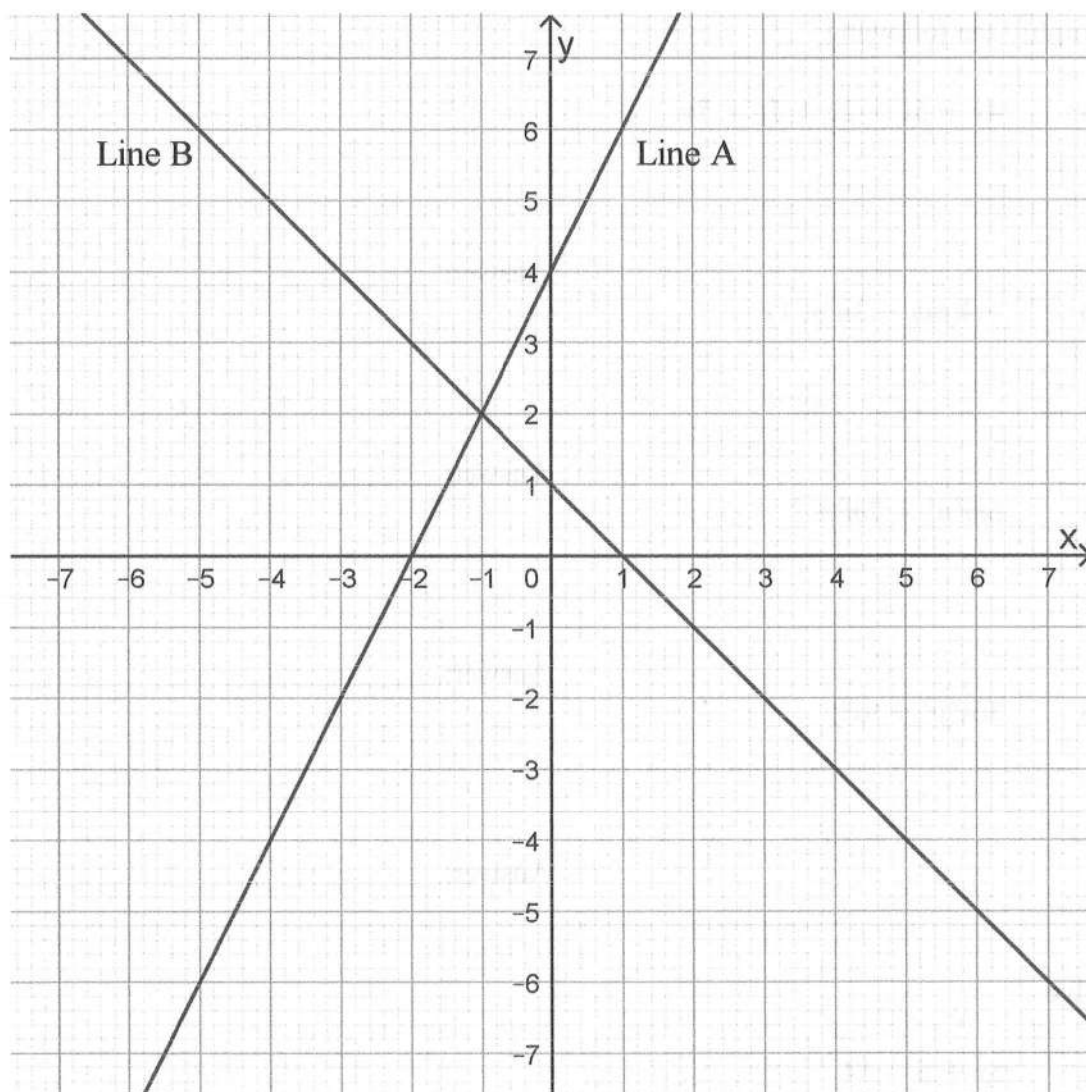
Answer: _____ [2]

(b) $\frac{x}{3} = 3\frac{1}{4}$

Answer: _____ [2]

[Turn over]

23.



The equation of a straight line can be written in the form $y = mx + c$,

where m is the gradient and c is the y -intercept.

(a) Use the graph to complete the information for **Line A**.

(i) gradient = _____ [1]

(ii) y -intercept = _____ [1]

(iii) Equation of **Line A** is _____ [1]



The equation of **Line B** is $y = -x + 1$.

(b) Complete the information for **Line B**.

(i) gradient = _____ [1]

(ii) y -intercept = _____ [1]

(c) Write the coordinates of the point where **Line A** and **Line B** intersect. (_____ , _____) [1]

(d) On the same axes, draw the graph of $y = -5$. [1]

BLANK PAGE



MATHEMATICS

PAPER 2 (CORE/EXTENDED) 3815/2

Wednesday **22 MAY 2024** 9:00 A.M.–11:00 A.M.

Additional materials:

Calculator (not graphing)

Geometrical instruments

Answer booklet

Graph paper

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.

Remove the graph paper from the question paper. Close the question paper.

Write your School Number, Candidate Number, Surname and Initials in the spaces provided on the answer booklet **AND** the graph paper. **Place the graph paper in the answer booklet.**

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 may be used. **[NO GRAPHING CALCULATORS ALLOWED].**

Tracing paper and geometrical instruments may be used.

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

The total number of marks for this paper is 100.

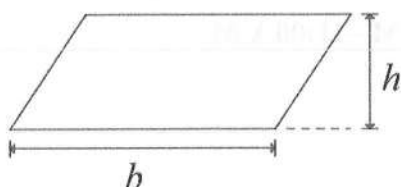


This question paper consists of 8 printed pages.

INFORMATION AND FORMULAE

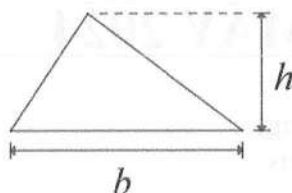
MENSURATION

Parallelogram



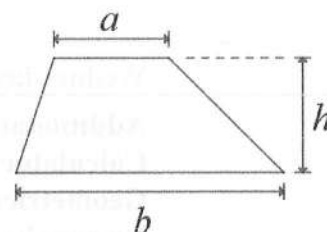
$$\text{Area} = bh$$

Triangle



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

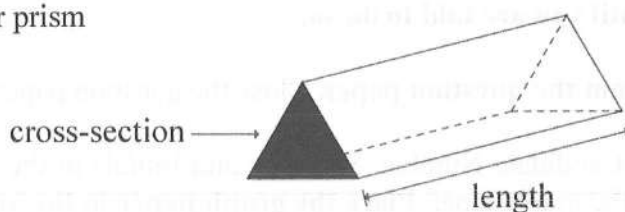
Trapezium



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

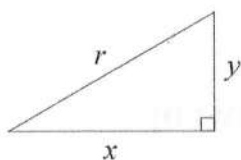
Circle (radius r , diameter d)	Circumference	$2\pi r$ or πd
	Area	πr^2
Cylinder (radius r , height h)	Volume	$\pi r^2 h$
Prism	Volume	area of cross-section $\times$ length

e.g. triangular prism

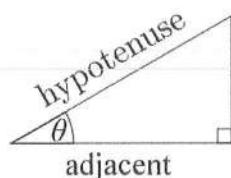


TRIGONOMETRY

Right-angled Triangle:



$$r^2 = x^2 + y^2 \quad (\text{Result of Pythagoras})$$



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



NUMBER

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

1. From the set $\{60, 61, 62, 63, 64, 65\}$, write a
- (a) factor of 183, [1]
- (b) multiple of 7, [1]
- (c) cube number. [1]

2. Evaluate $2^5 + \sqrt[3]{-27}$ [2]

3. Shay is paid \$2,520 per month.

She pays the following bills:

- ☐ \$ 650.00 rent monthly

☐ \$ 210.00 utilities monthly

☐ \$ 140.00 groceries weekly

- (a) For a month with four weeks, determine how much money is left after all these bills are paid. [3]

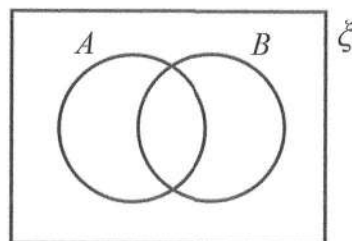
She sets aside 15% of her remaining pay for entertainment.

- (b) Calculate her entertainment budget per month. [1]

4. Let $\zeta = \{x \text{ is a natural number: } x \leq 10\}$

$A = \{\text{even numbers}\}$

$B = \{\text{factors of 12}\}$



- (a) Copy and complete the Venn diagram illustrating the sets above. [4]
- (b) List the elements of the following sets.
- (i) $A \cap B$ [1]
- (ii) A' [1]
- (c) Find $n(A \cup B)$. [1]

5. A cruise ship leaves port A and travels 195.5 miles to port B in $5\frac{3}{4}$ hours.

(a) Calculate the average speed of the cruise ship. [2]

After leaving port B, the ship travels at a speed of 30 mph to port C.

It takes $2\frac{1}{2}$ hours for this part of the journey.

(b) Find the distance between port B and port C. [2]

(c) Calculate the average speed of the entire journey from port A to port C. [3]

6. Given the vectors $\mathbf{p} = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$ and $\mathbf{q} = \begin{pmatrix} 4 \\ -5 \end{pmatrix}$, write the column vector form of

(a) $\mathbf{p} + \mathbf{q}$, [2]

(b) $2\mathbf{p} - \mathbf{q}$. [3]

7. Rewrite the following statements using inequality symbols.

(a) y is at most 16. [1]

(b) z is greater than 0 but less than 9. [2]

8. Solve $\frac{2}{5} + x = \frac{3x}{10} + \frac{3}{4}$. [3]

9. $C = \frac{5F - 160}{9}$ is used to convert degrees of temperature from Fahrenheit (F) to Celsius (C).

(a) Convert:

(i) $50^\circ F$ to $^\circ C$, [2]

(ii) $50^\circ C$ to $^\circ F$ [4]

(b) Make F the subject of the formula. [3]

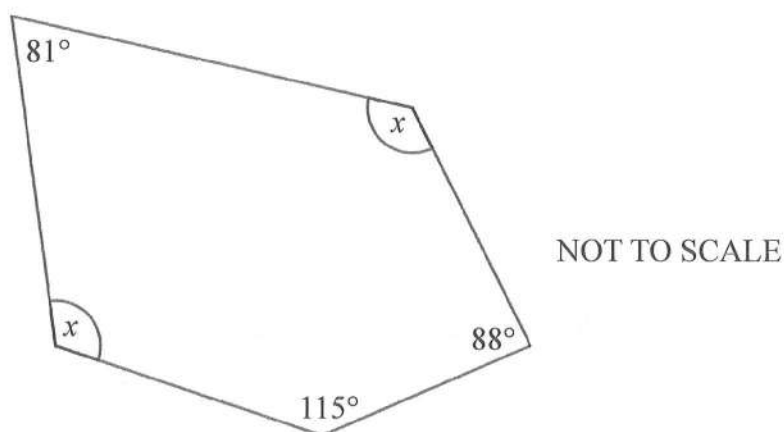


10. Factorise:

$$24x^3y^2 - 18x^2y^2 + 30xy^2$$

[3]

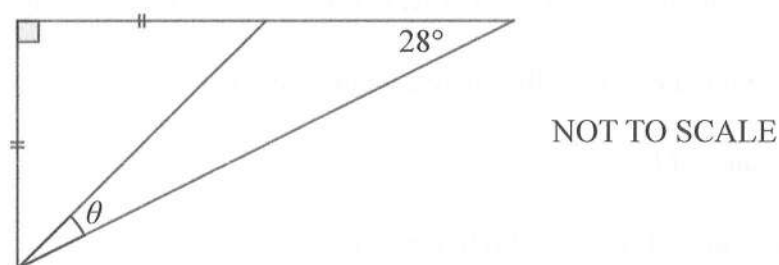
11. (a)



Given the irregular pentagon above, find the size of angle x .

[4]

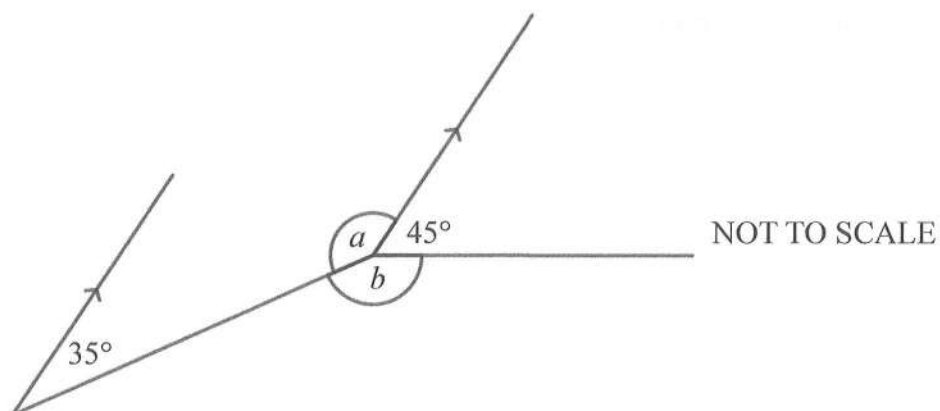
- (b)



Find the size of angle θ in the above diagram.

[2]

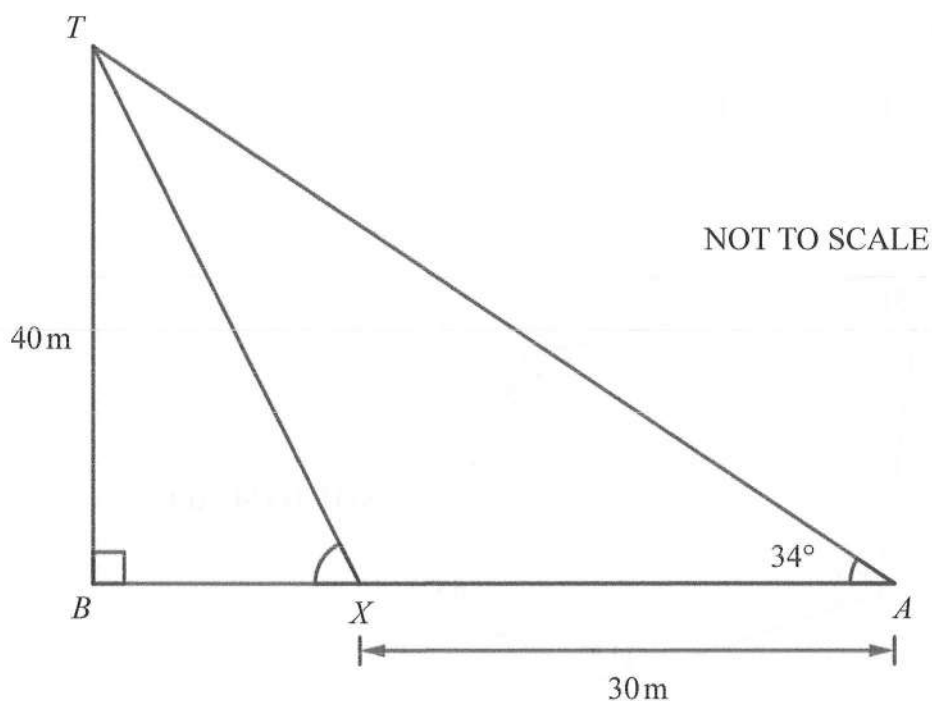
- (c)



Find the sizes of angles a and b in the above diagram.

[2]

12.



A 40 m tower stands at point B and a surveying team is standing at point A .

They measure the angle to the top (T) of the tower as 34° , as shown in the diagram.

In this question, give your answers to the nearest whole number.

- (a) Find the distance BA . [3]

The survey team then moves forward 30 m to point X .

- (b) Calculate length BX . [1]

- (c) Calculate length TX . [3]

- (d) Find the size of $\hat{BXT}$. [3]



13. In an examination Taylor got x marks.

Adam got 9 marks more than Taylor.

Geneva got twice as many marks as Adam.

- (a) Simplifying where possible, write an expression for the number of marks obtained by
- (i) Adam, [1]
- (ii) Geneva. [2]

All three students obtained a combined total of 187 marks.

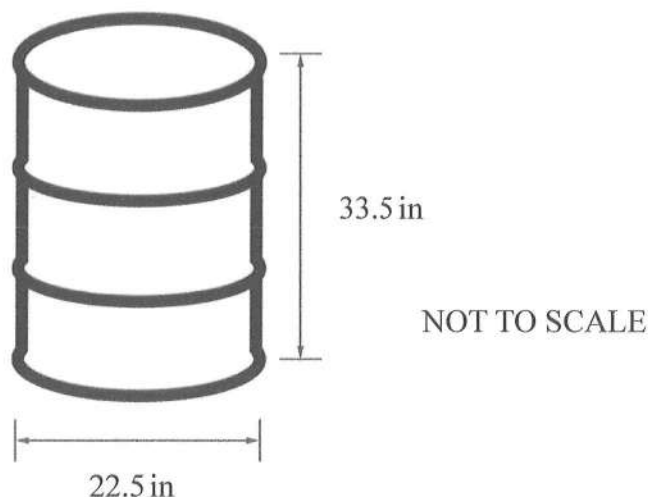
- (b) Form and solve an equation to show how many marks Taylor obtained. [4]

-
14. Solve the pair of simultaneous equations.

$$x - 3y = 15$$

$$4x + y = 8$$
 [5]

-
15. Cleen n Fresh Cleaning Company makes its dish liquids in cylindrical drums that have a diameter of 22.5 inches and a height of 33.5 inches.



- (a) Using $\pi \approx 3.14$, calculate the volume of dish liquid in a drum when full.
Give your answer correct to the nearest 100 in³. [4]
- (b) Determine how many one litre bottles can be completely filled from one drum (1 litre ≈ 61 in³). [2]

16. Simplify

(a) $\frac{3x}{5} - \frac{x}{3}$ [3]

(b) $\left(\frac{4x}{y^2}\right)^3$ [3]

(c) $\frac{7x^3}{12} \div \frac{21x^2}{8}$ [3]

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

(a) Copy and complete the table for the equation $y = (x - 3)^2 - 4$

x	-1	0	1	2	3	4	5	6	7
y		5	0	-3	-4		0	5	12

[2]

(b) Using a scale of 1 cm to 1 unit on each axis, for $-3 \leq x \leq 8$ and $-5 \leq y \leq 13$, draw the graph of the curve $y = (x - 3)^2 - 4$. [3]

(c) On the same coordinate grid, draw the graph of the line $y = -2x + 5$ [2]

(d) State the x-coordinates of the points where the graphs intersect. [2]



MATHEMATICS

PAPER 3 (CORE/EXTENDED) 3815/3

Monday **27 MAY 2024** 9:00 A.M.–11:30 A.M.

Additional materials:

Calculator (not graphing)

Answer booklet

Geometrical instruments

Graph paper

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.

Remove the graph paper from the question paper. Close the question paper.

Write your School Number, Candidate Number, Surname and Initials in the spaces provided on the answer booklet **AND** the graph paper. **Place the graph paper in the answer booklet.**

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 may be used. **[NO GRAPHING CALCULATORS ALLOWED].**

Tracing paper and geometrical instruments may be used.

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

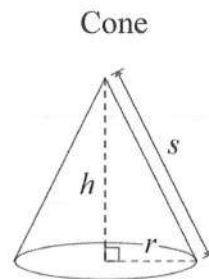
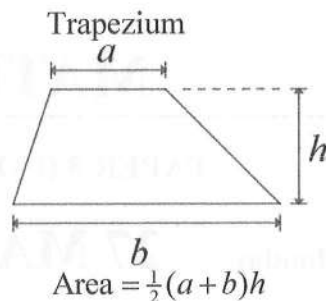
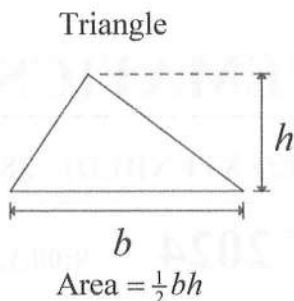
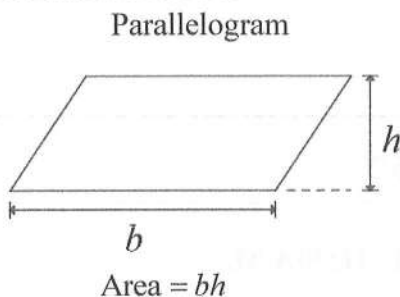
The total number of marks for this paper is 100.



This question paper consists of 8 printed pages.

INFORMATION AND FORMULAE

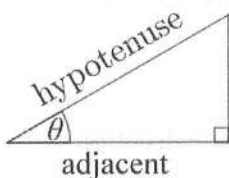
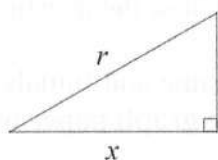
MENSURATION



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

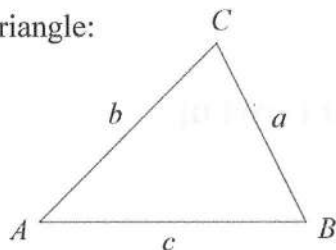
TRIGONOMETRY

Right-angled Triangle:



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

Any Triangle:



In any triangle ABC :

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

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

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

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

NUMBER Standard Form is $a \times 10^n$ where $1 \leq a < 10$ and n is an integer.

ALGEBRA The quadratic equation $ax^2 + bx + c = 0$ has solutions $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

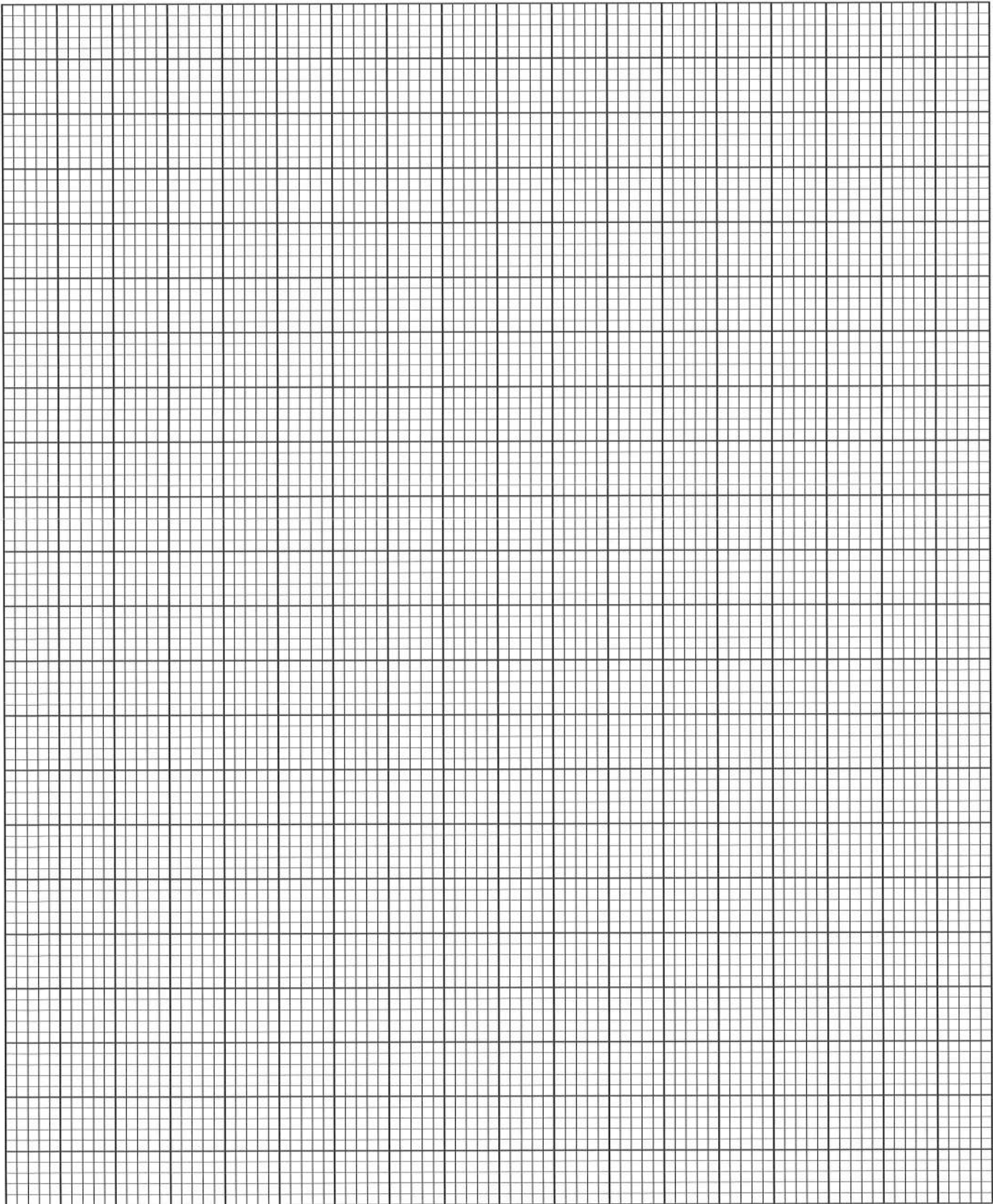
The determinant of matrix $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is $ad - bc$.

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

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



School No.	Candidate No.	Level:	For Examiner's Use
Subject Number & Title:		Paper:	
Surname & Initials:		Section:	
Signature:	Date:	Qu. No.	



EXAMINATION

School No.	Candidate No.	Level:	For Examiner's Use
Subject Number & Title:		Paper:	
Surname & Initials:		Section:	
Signature:	Date:	Qu. No.	

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

1. There are 20% more fish in a pond this year than there were last year.
There are currently 1,590 fish in the pond.
Find the number of fish that were in the pond last year. [2]
-
2. A new car cost \$32,000.
By the end of each year after purchase, it loses 15% of its value at the beginning of the year.
Find the value of the car three years after purchase. [3]
-
3. Given that $\overrightarrow{PQ} = \begin{pmatrix} -3 \\ 6 \end{pmatrix}$ and $\overrightarrow{RQ} = \begin{pmatrix} 5 \\ -9 \end{pmatrix}$, find $|\overrightarrow{PR}|$. [4]
-
4. (a) Given $\begin{pmatrix} a & 3 \\ -2 & b \end{pmatrix} \begin{pmatrix} 5 \\ -2 \end{pmatrix} = \begin{pmatrix} 14 \\ -8 \end{pmatrix}$, find the values of a and b . [4]
(b) If $M = \begin{pmatrix} -3 & n \\ 9 & -12 \end{pmatrix}$ and M is singular (has no inverse), find the value of n . [3]
-
5. Find all possible values of x that solve each of the following equations:
(a) $x^2 = 4$ [2]
(b) $x^2 + 4x = 0$ [3]
(c) $x^2 + 4x = 5$ [4]
-
6. The equation of a curve is $y = x^2 - x - 6$.
Find the coordinates of the point where
(a) the curve intersects the y -axis, [3]
(b) $\frac{dy}{dx} = -7$. [5]
-

7.

p	2	10	
q	15		240

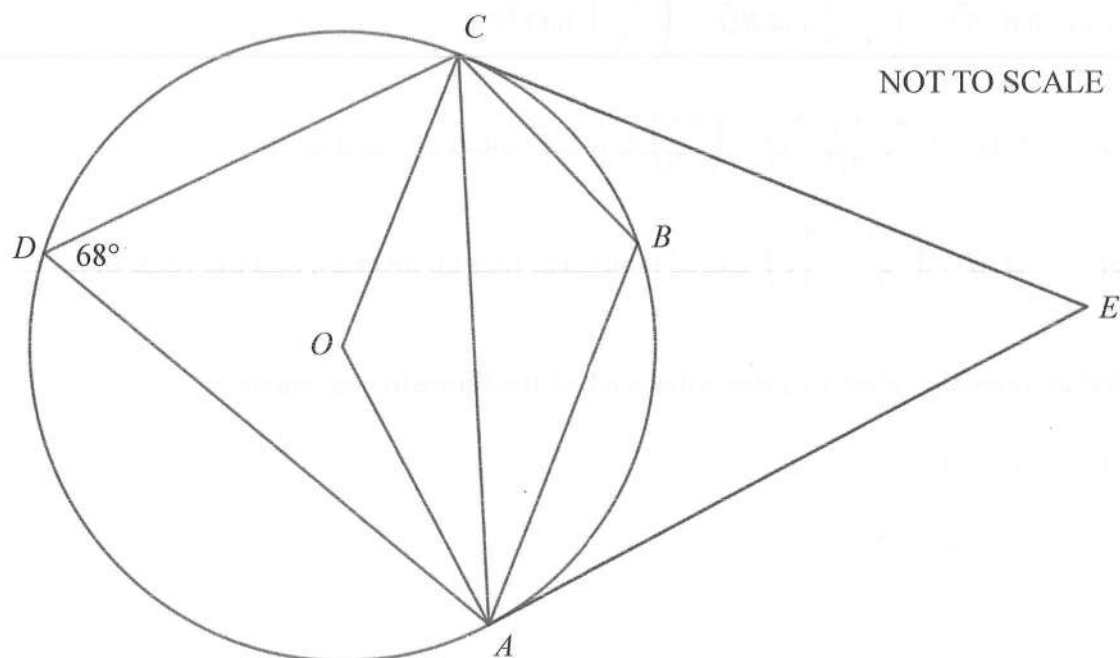
In the table above, q varies inversely as the square of p .

Find the missing value of

(a) q , [4]

(b) p . [3]

8.



In the above diagram, O is the centre of the circle.

AE and CE are tangents.

Find the size of the following angles:

(a) $\angle COA$ [1]

(b) $\angle CBA$ [1]

(c) $\angle OAE$, giving a reason for your answer [2]

(d) $\angle CAE$ [1]

(e) $\angle AEC$ [1]



9. Express as a single fraction in lowest terms:

(a) $\frac{6x}{(x+3)(x-3)} - \frac{3}{x-3}$ [4]

(b) $\frac{x^2-16}{x+4} \times \frac{4xy}{3xy-12y}$ [4]

10. Functions f and h are defined as $f(x) = \frac{3+x}{7}$ and $h(x) = 2x + 3$

Find

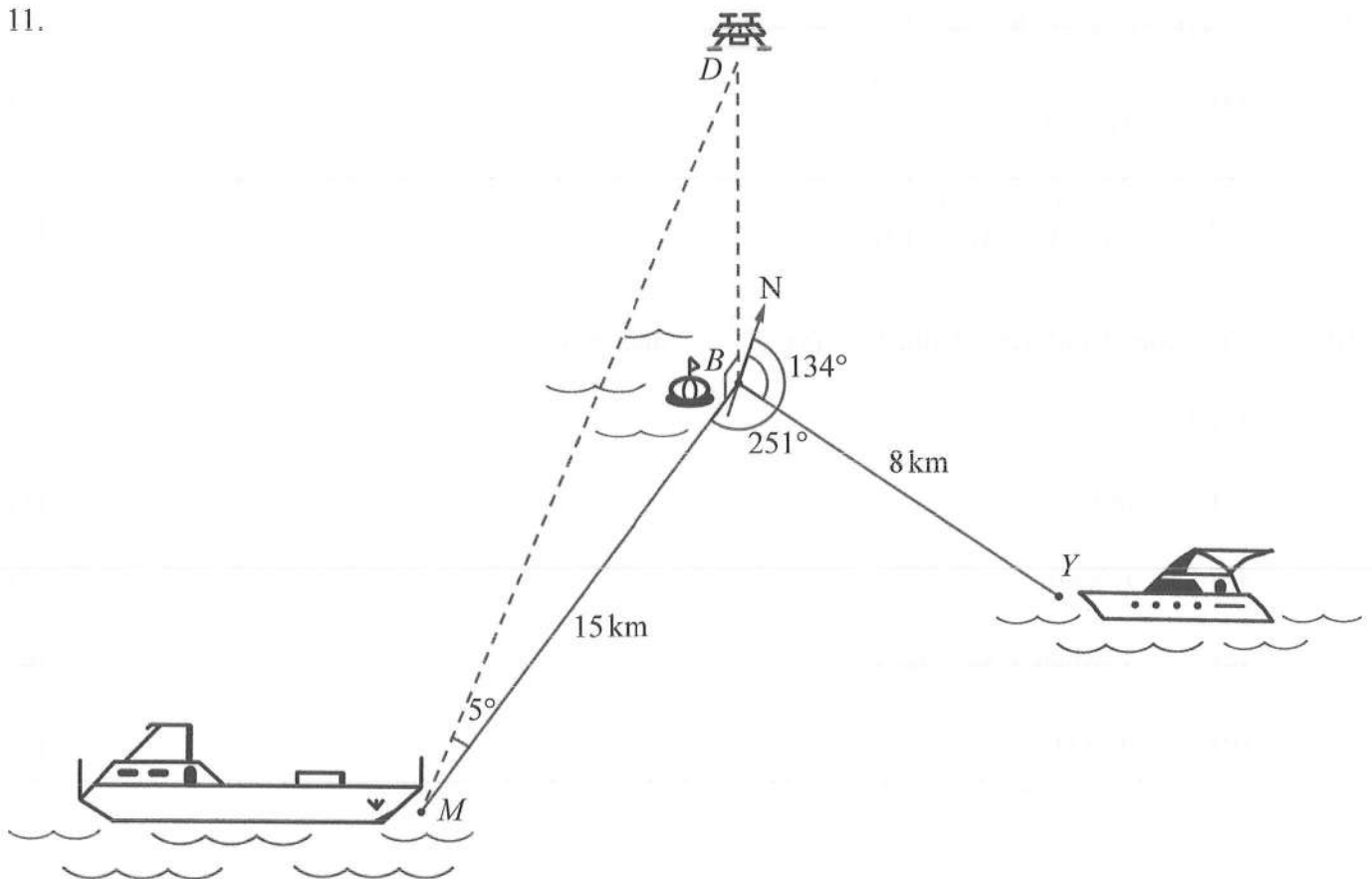
(a) $h(4)$, [1]

(b) $f(h(x))$, [2]

(c) x , where $f(x) = h(x)$, [4]

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

11.



The diagram shows the relative positions of a yacht (Y), mailboat (M), buoy (B) and a flying drone (D).

The yacht is 8 km from the buoy on a bearing of 134° .

The mailboat is 15 km from the buoy on a bearing of 251° .

- Calculate $\hat{MBY}$. [1]
- Find the distance MY between the mailboat and the yacht, correct to the nearest km. [4]
- Calculate $\hat{MYB}$, correct to the nearest degree. [4]
- Find the bearing of the mailboat from the yacht. [2]

A drone (D) hovers directly above the buoy.

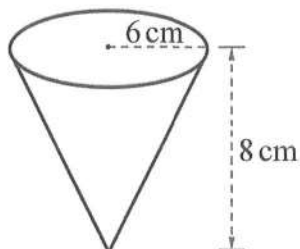
The angle of elevation from the mailboat to the drone is 5° .

- Find the hovering height of the drone above the buoy. [2]



12. For this question, use $\pi \approx 3.14$.

- (a) A solid cone has a radius of 6 cm and height of 8 cm.

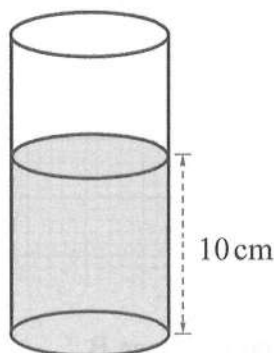


NOT TO SCALE

Find the total surface area of the cone.

[4]

- (b) 500 cm^3 of water is poured into a cylinder to a depth of 10 cm.

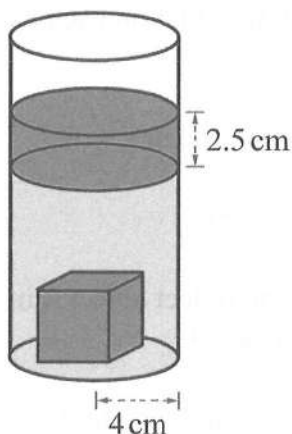


NOT TO SCALE

- (i) Show that the radius of the cylinder is 4 cm, correct to the nearest cm.

[3]

A solid cube is dropped into the cylinder of water such that the water level increases by 2.5 cm.

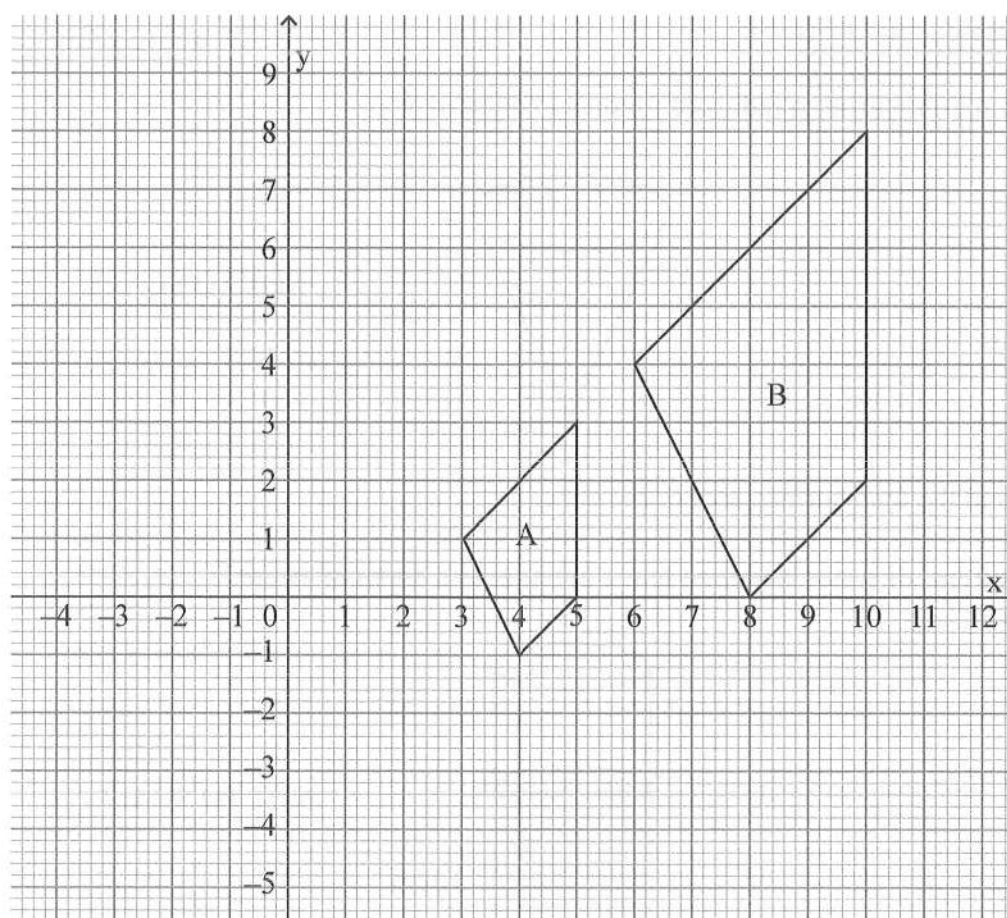


NOT TO SCALE

- (ii) Find the length of a side of the cube, correct to the nearest cm.

[4]

13.



The diagram shows object A and an image B.

- (a) Describe fully the transformation that maps A onto B. [3]

ANSWER THE REMAINDER OF THIS QUESTION ON THE GRAPH PAPER PROVIDED

- (b) Using a scale of 1 cm to 1 unit on each axis, for $-8 \leq x \leq 6$ and $-2 \leq y \leq 12$, draw and label object A. [2]

- (c) Translate object A by the vector $\begin{pmatrix} -6 \\ 7 \end{pmatrix}$.

Draw and label the image C. [2]

- (d) Draw the line $y = x$ and reflect object A in this line.
Draw and label the image D. [3]

- (e) Rotate object A 180° about the point $(0, 2)$.
Draw and label the image E. [3]

