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School Number	Candidate Number								
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Surname and Initials									

MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Monday **30 MAY 2022** 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.

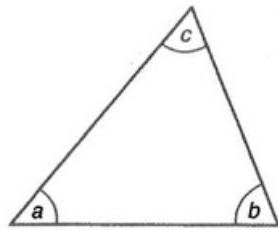
The mark for each question, or part question, is shown in brackets [].

The total number of marks for this paper is 100.

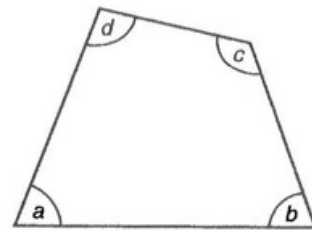


This question paper consists of 16 printed pages.

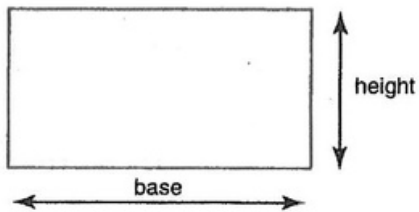
INFORMATION AND FORMULAE



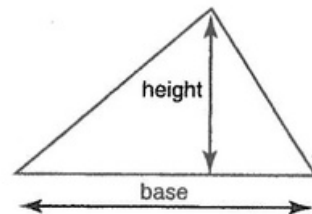
Angle sum of triangle
 $a + b + c = 180^\circ$



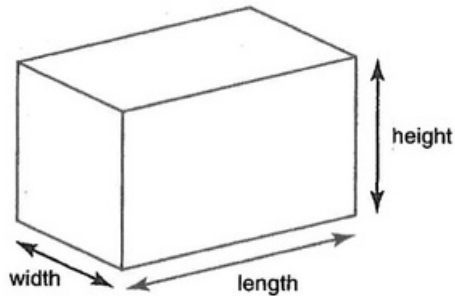
Angle sum of quadrilateral
 $a + b + c + d = 360^\circ$



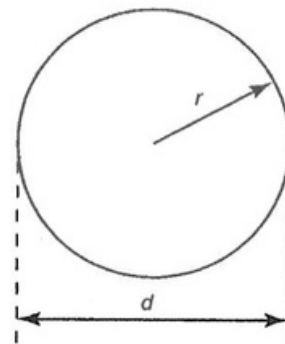
Area of rectangle = base $\times$ height



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



1. At a local college, there are 8,638 students enrolled.

(a) Write 8,638 to the nearest thousand.

Answer: _____ [1]

The bookstore at the college has 10,278 books in its inventory.

(b) Write this number correct to three significant figures.

Answer: _____ [1]

2. {20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30}

From the set of numbers above,

(a) find the product of the prime numbers,

Answer: _____ [2]

(b) find the sum of the multiples of seven.

Answer: _____ [2]

3. Arrange the following numbers in ascending order:

$$\frac{3}{5}$$

$$0.58$$

$$2^{-4}$$

$$62.5\%$$

$$\sqrt{0.4}$$

Answer: _____ [2]

[Turn over]

4. Evaluate $(-7)^2 + (8 - 12)^3 \div 2$

Answer: _____ [4]

5. The number of visitors to some tourist attractions is shown in the table below.

<i>Attraction</i>	<i>Number of Visitors</i>
Blue Mountain	5.3 million
The Palace	967,380
Theme Park	1.23×10^7
Space Museum	4,285,300

- (a) Write the number of visitors to the Theme Park as an ordinary number.

Answer: _____ [1]

- (b) Write the number of visitors to The Palace in standard form (scientific notation).

Answer: _____ [1]

- (c) Calculate how many more people visited the Blue Mountain than the Space Museum, giving your answer in standard form.

Answer: _____ [2]



6. A store owner buys a case of 40 cans of tuna for \$10.

(a) Find the cost of one can of tuna.

Answer: \$ _____ [1]

(b) Five cans are damaged and cannot be sold. He sells the remainder of the cans for 45 cents per can.

(i) Calculate the total made from the sale of the remaining cans.

Answer: \$ _____ [2]

(ii) Calculate how much profit he made.

Answer: \$ _____ [1]

(iii) Express this profit as a percentage of his total cost price.

Answer: _____ % [2]



7. Speedy's Bus Service offers three bus shuttles that travel from Shirley Street to East-West Highway.

The schedule below shows the departure times from Shirley Street, and the arrival times at each stop.

	Bus A	Bus B – Express	Bus C
Shirley Street	9:15	10:25	11:15
Wulff Road	9:27	–	11:27
Robinson Road	9:50	–	11:50
East-West Highway	10:10	11:03	12:10

A bus leaves the Shirley Street Bus Station at 11:15.

- (a) Determine the time it will arrive at Wulff Road.

Answer: _____ [1]

Evie wants to travel from Shirley Street to East-West Highway on the Express bus.

- (b) Calculate how long this journey would take.

Answer: _____ [2]

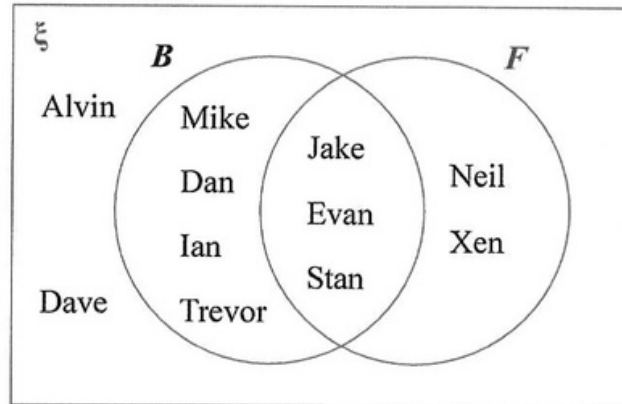
Another bus D leaves Shirley Street 55 minutes after bus C arrives at the East-West Highway Station.

- (c) State the time bus D leaves Shirley Street.

Answer: _____ [2]



8.



The Venn diagram above shows the boys in a 10th grade class who play basketball (B) or football (F). Some students play neither sport.

- (a) State how many boys play neither sport.

Answer: _____ [1]

- (b) List the boys that play football only.

Answer: _____ [1]

- (c) List the members of $B \cap F$.

Answer: { _____ } [1]

- (d) Find $n(B \cup F)$.

Answer: _____ [1]

- (e) List the members of the set B'

Answer: { _____ } [1]

9. Carol and Wanda are in business together. They share profits in the ratio of their investment in the business. Carol put in \$24,000 and Wanda \$32,000.

(a) Write in simplest form the ratio of their investments, Carol : Wanda.

Answer: _____ [1]

(b) Determine Carol's share when the business made a profit of \$25,200.

Answer: \$ _____ [2]

(c) If Wanda's share of profit on one occasion was \$7,664 calculate the total profit made that year.

Answer: \$ _____ [3]

10. James collects tropical fish. He has five guppies, four angel fish, three clown fish, and two Siamese fighting fish. He picks a fish at random from his collection for his niece.

Calculate the probability that the fish chosen is,

(a) a guppy,

Answer: _____ [1]

(b) an angel fish or a clown fish,

Answer: _____ [1]

(c) a tiger fish,

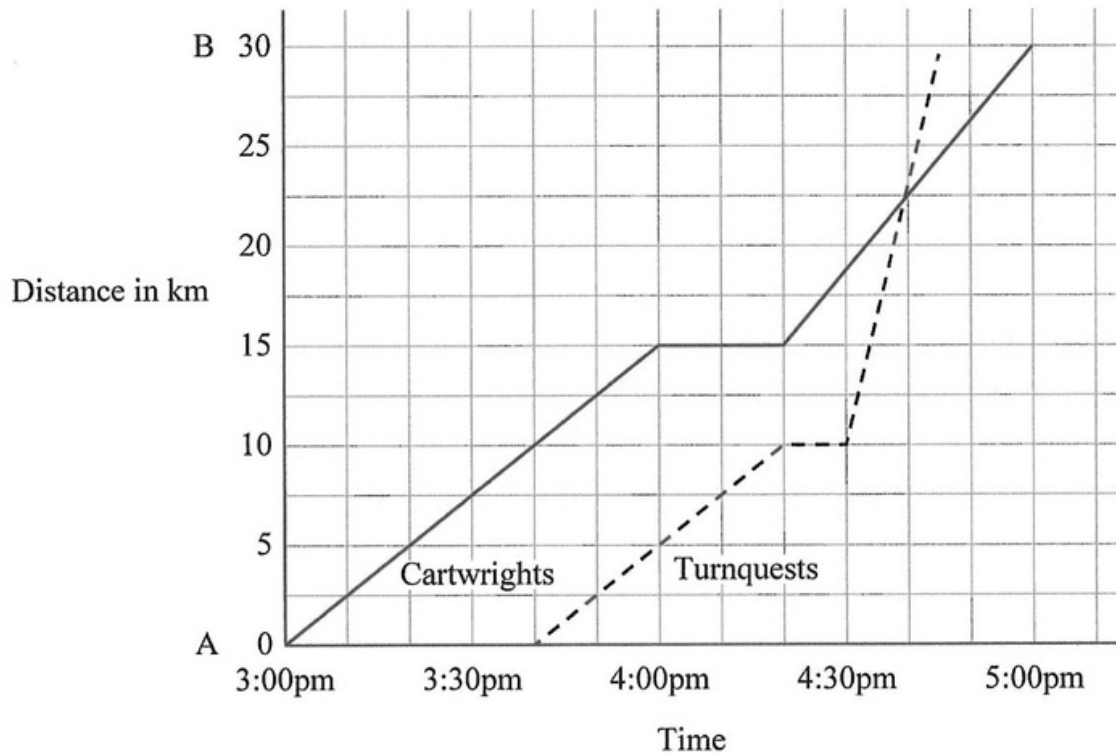
Answer: _____ [1]

(d) **not** a Siamese fighting fish.

Answer: _____ [2]



11. The graph below shows the journeys of two cars as they travelled along the same road from Settlement A to Settlement B, 30 km apart. Each family took a short break during their journey.



- (a) State the time, in minutes, that the Cartwrights took for their break.

Answer: _____ min. [1]

- (b) Calculate the average speed of the Cartwrights' entire journey in km/h.

Answer: _____ km/h [2]

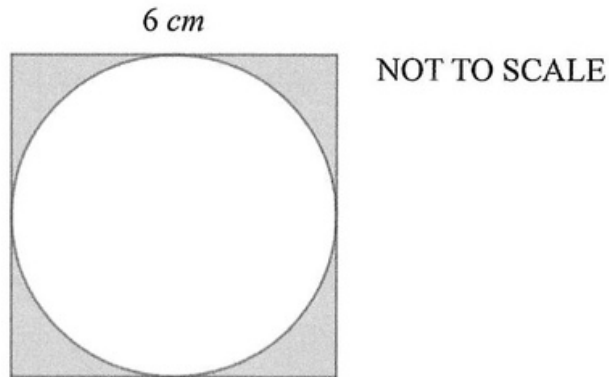
- (c) Calculate the speed of the Turnquest family before their break. Show the working that supports this answer.

Answer: _____ km/h [3]

- (d) State the time when the Turnquests overtook the Cartwrights.

Answer: _____ p.m. [1]

12. The diagram below shows a circle inscribed in a square of side 6 cm.



Using $\pi = 3.142$ where necessary, calculate

- (a) the radius of the circle,

Answer: _____ cm [1]

- (b) the area of the square,

Answer: _____ cm^2 [1]

- (c) the circumference of the circle,

Answer: _____ cm [2]

- (d) the area of the circle,

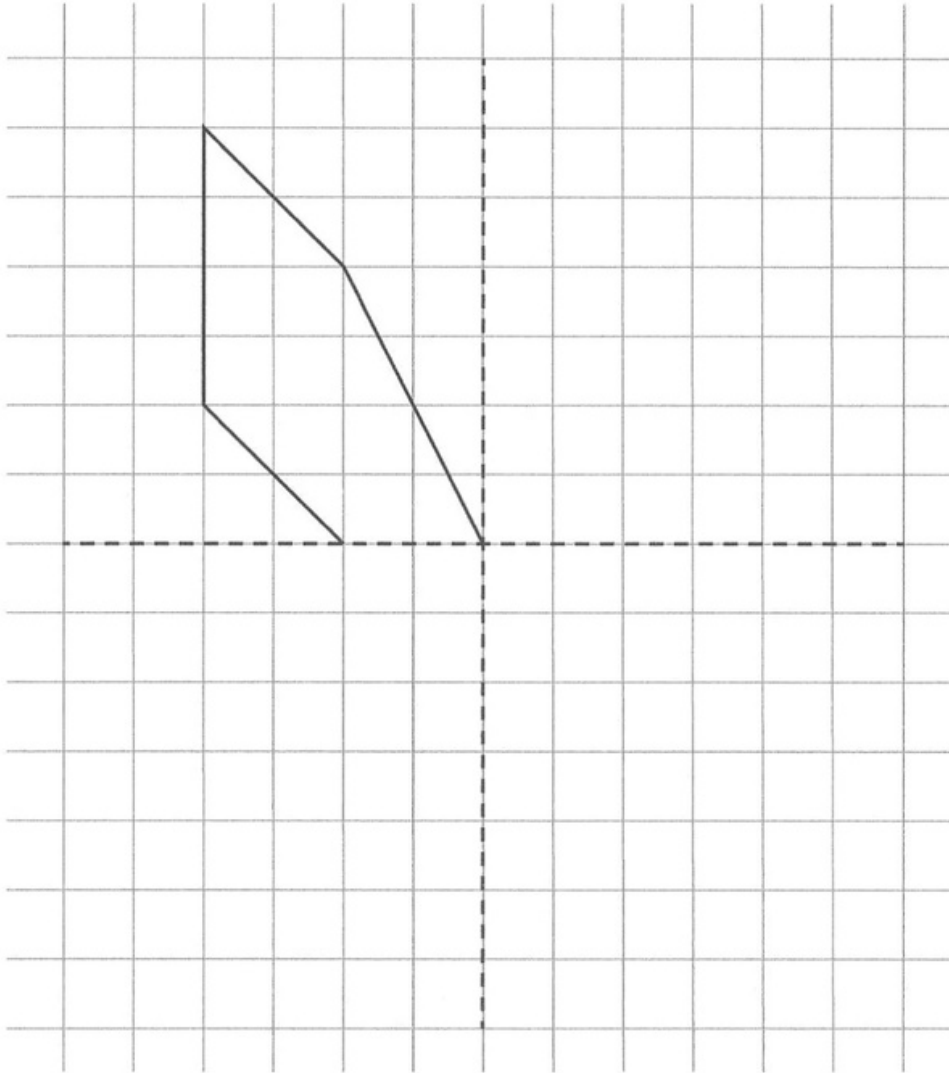
Answer: _____ cm^2 [2]

- (e) the area of the shaded region.

Answer: _____ cm^2 [1]



13.



In the space provided above, the dotted lines are lines of symmetry.

Complete the diagram so that it is symmetric about both lines.

[3]



14. Fredricka kept the following records of her power bills for 9 months:

\$37, \$41, \$32, \$29, \$34, \$58, \$58, \$49 and \$58.

- (a) Find the mode of Fredricka's monthly power bill.

Answer: \$ _____ [1]

- (b) Find the median of Fredricka's monthly power bill.

Answer: \$ _____ [2]

- (c) Find the mean of Fredricka's monthly power bill.

Answer: \$ _____ [2]

-
15. (a) If $x = 4$, $y = -5$, $z = 2$ and $w = -3$, evaluate the following:

$$\frac{3x - w}{y + z}$$

Answer: _____ [4]

- (b) Solve the following equations:

(i) $\frac{3}{5}x = 24$

Answer: _____ [2]



(ii) $3 - 5x = -17$

Answer: _____ [2]

(c) Simplify:

(i) $16a^2b^3 \times (-2)a^3b^{-2}$

Answer: _____ [3]

(ii) $r^7s \div 2r^5s$

Answer: _____ [2]

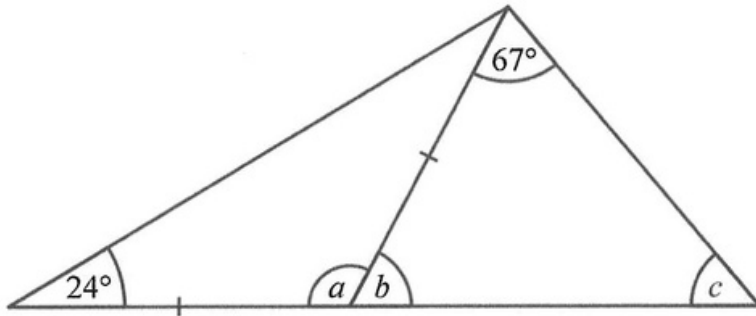
(iii) $\frac{x^2}{y} \times \frac{y^2}{x}$

Answer: _____ [2]



16. Calculate the sizes of the marked angles below:

(a)



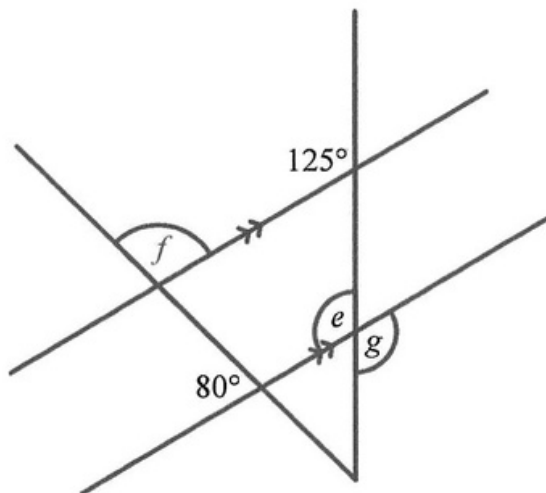
NOT TO SCALE

(i) $a = \underline{\hspace{2cm}}^\circ$ [1]

(ii) $b = \underline{\hspace{2cm}}^\circ$ [1]

(iii) $c = \underline{\hspace{2cm}}^\circ$ [1]

(b)



NOT TO SCALE

(i) $e = \underline{\hspace{2cm}}^\circ$ [1]

(ii) $f = \underline{\hspace{2cm}}^\circ$ [1]

(iii) $g = \underline{\hspace{2cm}}^\circ$ [1]



17.



- (a) Measure and write down the length of line segment AB above.

Answer: _____ cm [1]

- (b) Using a ruler and compasses only, construct a 90° angle at B . [3]

DO NOT ERASE CONSTRUCTION LINES

- (c) Using a protractor, draw $\hat{BAC} = 40^\circ$ and complete triangle ABC . [2]

- (d) Measure and write down the size of $\hat{ACB}$.

Answer: _____ $^\circ$ [1]

- (e) Give the special name of the side AC .

Answer: _____ [1]

18. "Spend-Ur-Mon-E" variety store had a "Midnight Madness" sale. All items were 30% off.

(a) (i) Determine the discount on items totalling \$360.

Answer: \$ _____ [2]

(ii) Find the final cost of these items.

Answer: \$ _____ [1]

Scott got a "lucky customer prize", which awards an additional 10% discount on the sale price.

(b) Find the amount Scott pays for a TV originally marked at \$480.

Answer: \$ _____ [3]

