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MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Wednesday **9 JUNE 2021** 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.

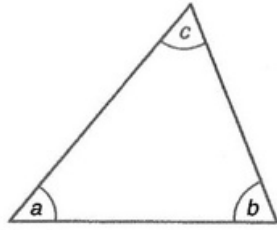
The mark for each question, or part question, is shown in brackets [].

The total number of marks for this paper is 100.

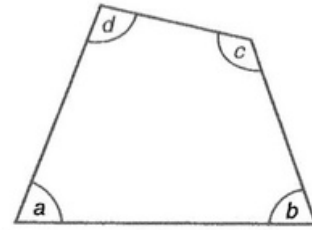


This question paper consists of 14 printed pages and 2 blank pages.

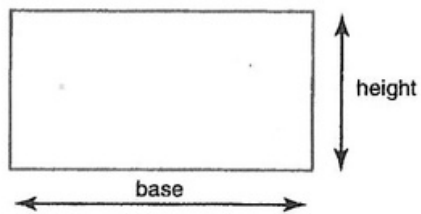
INFORMATION AND FORMULAE



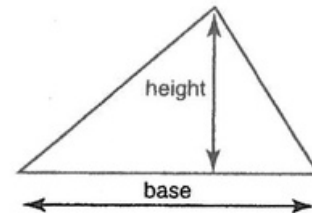
Angle sum of triangle
 $a + b + c = 180^\circ$



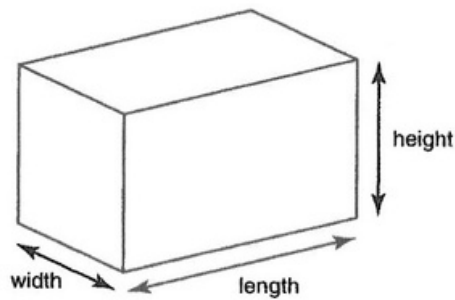
Angle sum of quadrilateral
 $a + b + c + d = 360^\circ$



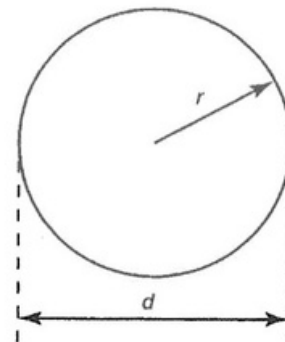
Area of rectangle = base $\times$ height



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. Write down the next term in each of the following sequences.

(a) 7, 13, 19, 25, 31, _____.

[1]

(b) 128, 64, 32, 16, _____.

[1]

2. Evaluate

$$\sqrt[3]{216} + 2^4$$

Answer: _____ [3]

3. Evaluate

$$\frac{15^2}{5(8+3)} + 35$$

Answer: _____ [3]

4. (a) Evaluate $\frac{18.99 \times 2.5}{11 - 9.8}$, giving the exact value.

Answer: _____ [3]

(b) Round your answer from (a) to

(i) 3 decimal places,

Answer: _____ [1]

(ii) 2 significant figures.

Answer: _____ [1]

[Turn over

5. From the set of numbers $\{-2, \sqrt{3}, 4, 7, 9\}$, write down

(a) a prime number

Answer: _____ [1]

(b) an irrational number

Answer: _____ [1]

(c) a number less than zero

Answer: _____ [1]

(d) a multiple of 3 and 9

Answer: _____ [1]

6. Convert the following to the units indicated.

(a) 6075 m = _____ km [1]

(b) 800 mg = _____ g [1]

(c) 4.675 m = _____ mm [1]

7. Write each statement using one of the following set symbols:

$\in, \cap, \cup, A', \subset$

(a) The union of set A and set B _____ [1]

(b) Set A is a subset of set B _____ [1]

(c) d is an element of A _____ [1]

(d) The complement of set A _____ [1]



8. Solve the following equations.

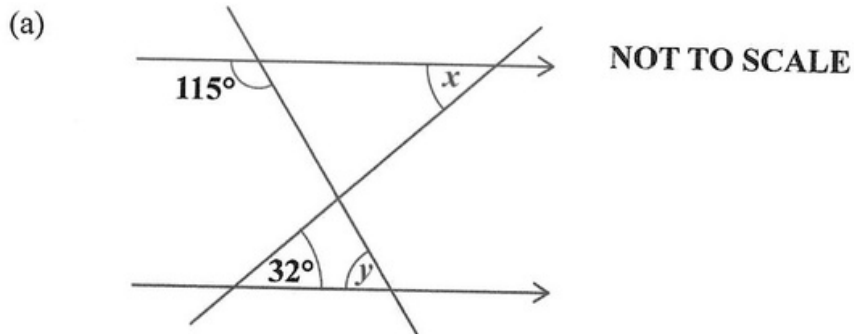
(a) $3n - 5 + 2n = 4n$

Answer: _____ [2]

(b) $\frac{2x}{15} = \frac{2}{3}$

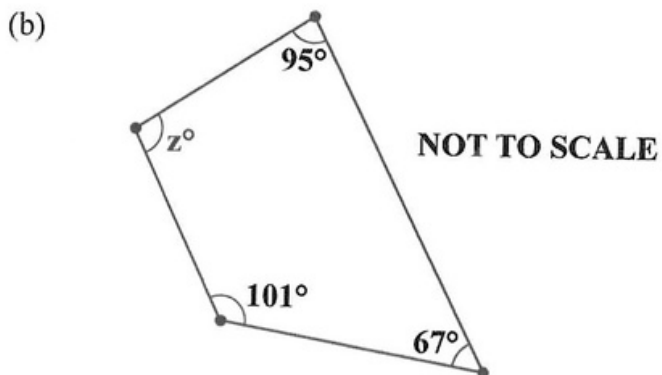
Answer: _____ [3]

9. Find the size of each angle marked with a letter.



Answer: x _____ [1]

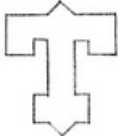
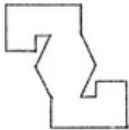
Answer: y _____ [1]



Answer: z _____ [1]

10. Below are some logos. In the spaces provided, state:

- (i) the number of lines of symmetry and
- (ii) the order of rotational symmetry of each logo.

		Number of Lines of Symmetry	Order of Rotational Symmetry
(a)		(i) _____	(ii) _____
(b)		(i) _____	(ii) _____
(c)		(i) _____	(ii) _____

[6]

11. (a) Express 6.25% as a fraction in its lowest terms.

Answer: _____ [2]

(b) Convert $\frac{1}{3}$ to a percentage.

Answer: _____ [2]

(c) Write the following in descending order.

60%, $\frac{2}{3}$, 0.63, $\frac{5}{8}$

Answer: _____ [2]



12. Burt bought his football equipment for the new season. His cleats (shoes) cost k dollars. His uniform cost \$50 more than his cleats. His shoulder pads cost three times as much as the cleats.

(a) Write a term or expression using k for

(i) the cost of the uniform,

Answer: _____ [1]

(ii) the cost of the shoulder pads,

Answer: _____ [1]

(iii) the total cost of **ALL** the equipment he bought, giving your answer in simplest form.

Answer: _____ [2]

(b) If the total amount spent was \$425, find the value of k .

Answer: _____ [3]

13. Before a weight loss programme Teran weighed 240 pounds. If he now weighs 180 pounds, find his percentage weight loss.

Answer: _____ [3]

14. (a) A factory manager takes 20 minutes to travel from his home to the site in the mornings. He needs 15 minutes to unlock the facilities and 30 minutes to check the machines before the factory is operational.

What is the latest time he can leave his home for operations to start at 8:00am?

Answer: _____ [2]

- (b) (i) A worker's shift begins at 8:30am and ends at 4:00pm. How long was his shift?

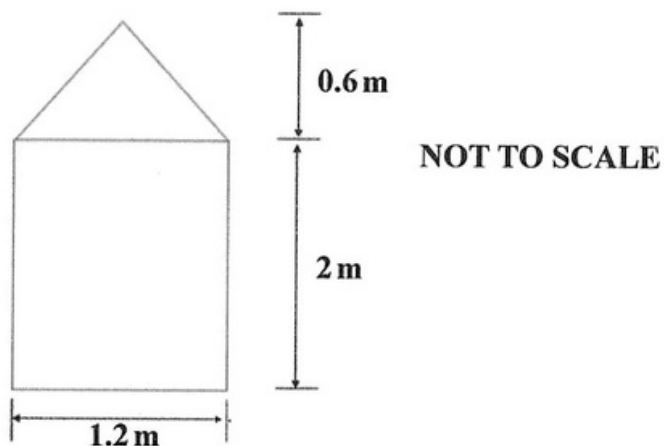
Answer: _____ [2]

- (ii) The worker takes a lunch break at 13:45. What time is this on a 12-hour clock?

Answer: _____ [2]



15. The diagram represents a church window.



Calculate the area of the

- (a) triangular section,

Answer: _____ [2]

- (b) entire window.

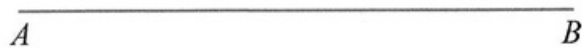
Answer: _____ [3]

The window was fitted with stained glass at a total cost of \$2070.

- (c) Calculate the cost per square metre of stained glass.

Answer: _____ [2]

16.



- (a) Write the measurement in cm of the line segment AB .

Answer: _____ [1]

- (b) Using a ruler and compass only, construct a 90° angle at B . (Do **NOT** erase construction lines.) [3]
- (c) Complete $\triangle ABC$ so that $BC = 5.4$ cm. [2]
- (d) Give the measurement of $\angle BAC$.

Answer: _____ [1]



17. Simplify each of the following.

(a) $7n^3 - 7n^2 - 3n^2 - 5n^3$

Answer: _____ [2]

(b) $-9(-4m + 5)$

Answer: _____ [2]

(c) $12r^2 \times 5r$

Answer: _____ [2]

(d) $39x^3 \div 3x^4$

Answer: _____ [2]

[Turn over]

18. A Mathematics teacher has 36 students in one of his classes. He gives them a quiz out of 10 possible points. The scores were recorded in the table below.

Score	2	3	4	5	6	7	8	9	10
No. of Students	4	3	3	8	4	3	2	4	5

- (a) Write down the modal score.

Answer: _____ [1]

Calculate

- (b) the range of the scores attained by the students,

Answer: _____ [1]

- (c) the median score,

Answer: _____ [2]

- (d) the mean score,

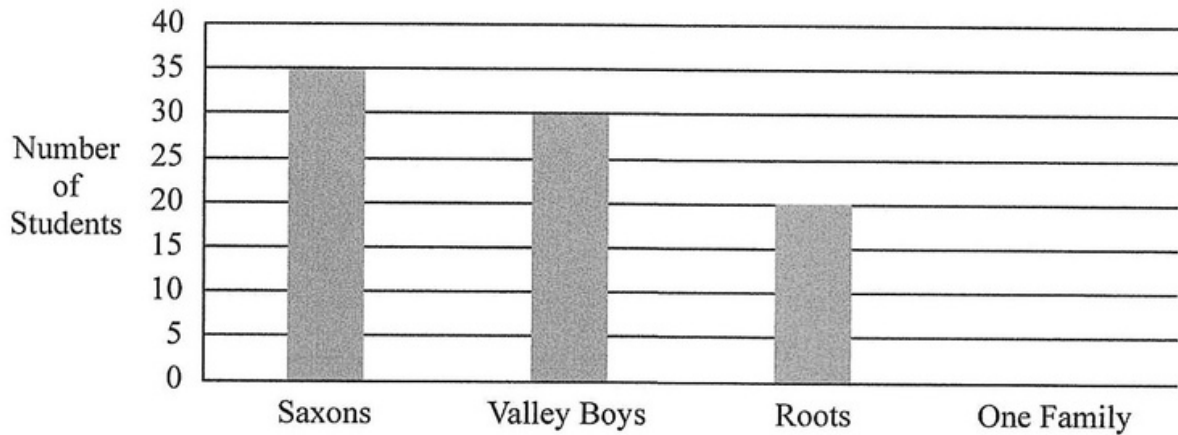
Answer: _____ [2]

- (e) how many students scored 6 or more.

Answer: _____ [1]



19. A group of students were asked which Junkanoo group was their favourite. Some of their responses are shown in the bar chart below:



- (a) 15 students voted for One Family. Represent this information on the bar chart above. [1]
- (b) Calculate the total number of students surveyed.

Answer: _____ [1]

- (c) How many more students picked Saxons than Roots?

Answer: _____ [1]

- (d) Calculate the ratio of the number of students who picked Saxons to the number of students who picked Valley Boys, in simplest form.

Answer: _____ [2]



20. Martina bought a bedroom set from *Furniture Dreams*. The cash price was \$3000. She purchased the set on hire purchase. She made a down payment of 15% of the cash price and paid \$255 per month for 12 months.

Calculate

- (a) the amount of the deposit,

Answer: _____ [1]

- (b) the total of the monthly payments,

Answer: _____ [2]

- (c) the total hire purchase cost,

Answer: _____ [2]

- (d) the savings if she had paid cash.

Answer: _____ [1]



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