



MINISTRY OF EDUCATION AND HUMAN RESOURCES
MAURITIUS EXAMINATIONS SYNDICATE

NATIONAL ASSESSMENT – FORM III

NAME

SCHOOL

CLASS/SECTION

MATHEMATICS
Specimen Paper

1 hour 45 minutes

Students answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, the name of your school and your class/section in the spaces provided above.

Write in dark blue or black pen.

You may use a soft pencil for diagrams or rough working.

Do not use correction fluid.

There are **18** questions in this paper.

Answer **all** questions.

If working is needed for any question it must be shown in the space below that question.

Omission of essential working may result in loss of marks.

Diagrams are not drawn to scale.

ELECTRONIC CALCULATORS MUST NOT BE USED IN THIS PAPER

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is **100**.

1. Evaluate

(a) $\sqrt{49}$,

Answer [1]

(b) $10 + 6 \div 2$,

Answer [1]

(c) $5.87 - 2.31$.

Answer [1]

2. (a) Write down the next term in the sequence

5, 8, 11, 14, 17,

Answer [1]

(b) Convert 4.85 kilogrammes into grammes.

Answer g [1]

(c) Write down 7.538 correct to two decimal places.

Answer [1]

3. (a) Express the ratio 9 : 15 in its simplest form.

Answer : [1]

(b) Express $\frac{1}{5}$ as a percentage.

Answer % [1]

(c) Simplify

(i) $y^4 \times y^5$,

Answer [1]

(ii) $x^8 \div x^3$.

Answer [1]

4. (a) Find the value of $1\frac{1}{4} \times \frac{8}{15}$, giving your answer as a fraction in its lowest term.

Answer [1]

- (b) Given that vector $\overrightarrow{AB} = \begin{pmatrix} -4 \\ 3 \end{pmatrix}$, find

(i) $|\overrightarrow{AB}|$,

Answer units [2]

(ii) \overrightarrow{BA} .

Answer [1]

5. $A = \begin{pmatrix} 2 & 3 \\ 1 & -6 \end{pmatrix}$ and $B = \begin{pmatrix} 5 & 0 \\ 4 & 2 \end{pmatrix}$.

Find

(a) $2A + B$,

Answer [2]

(b) AB .

Answer [2]

6. (a) Given that $a = -3$ and $b = -4$, find the value of $a^2 - b$.

Answer [2]

(b) Factorise

(i) $5x^2 - 10x$,

Answer [1]

(ii) $m^2 - 25$.

Answer [1]

7. (a) $\xi = \{ 10, 11, 12, 13, 14, 15, 16, 17, 18 \}$.

$A = \{ x : x \text{ is a multiple of } 3 \}$ and $B = \{ x : x \text{ is a multiple of } 5 \}$.

(i) List the elements of $A \cup B$,

Answer [1]

(ii) Find $n(A')$.

Answer [1]

(b) In a box there are 5 red balls, 4 blue balls and 2 yellow balls. A ball is drawn at random from the box.

Giving your answer as a fraction, find the probability that the ball is

(i) blue,

Answer [1]

(ii) not red.

Answer [1]

8. Solve the simultaneous equations

$$2x + 3y = 16$$

$$3x - 5y = 5.$$

Answer $x = \dots\dots\dots$

$y = \dots\dots\dots$ [4]

9. A cubical die was thrown 30 times.

The table shows the number of times that each possible score occurred.

Score	1	2	3	4	5	6
Frequency	9	6	4	2	5	4

For the above distribution, find the

(a) mode,

Answer..... [1]

(b) mean,

Answer [3]

(c) median.

Answer [3]

10. (a) Solve the equation $\frac{4}{x+1} = \frac{5}{2x-1}$.

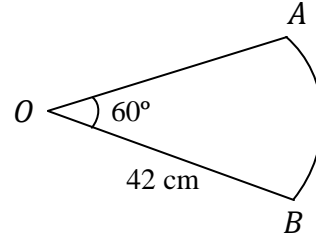
Answer [3]

(b) Solve the inequality $3 - 2x < 15$.

Answer [3]

11. (a) The diagram shows a sector OAB of a circle with centre O and radius 42 cm. Calculate the length of the arc AB .

[Use $\pi = \frac{22}{7}$]



Answer cm [2]

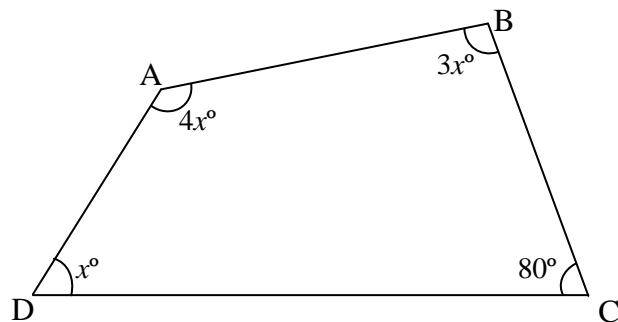
- (b) Each of the exterior angles of a **regular** polygon is 20° .

Calculate the number of sides in the polygon.

Answer [2]

- (c) ABCD is a quadrilateral.

Find the value of x .



Answer [3]

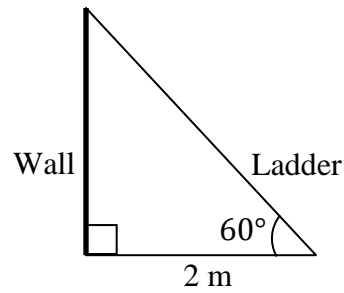
12. (a) Find the equation of the straight line passing through the points $A (5, 6)$ and $B (7, 12)$.

Answer [3]

- (b) Given that $y = \frac{2a + 5x}{a}$, express x in terms of a and y .

Answer [3]

13. A ladder rests against the top of a vertical wall. It makes an angle of 60° with the horizontal. The foot of the ladder is at a horizontal distance of 2 m from the foot of the wall.



[$\sin 60^\circ = 0.866$, $\cos 60^\circ = 0.5$, $\tan 60^\circ = 1.732$]

Using as much of the given information as necessary,

- (a) calculate the height of the wall,

Answer m [3]

- (b) calculate the length of the ladder.

Answer m [4]

14. (a) An amount of Rs 8 000 is shared among three persons in the ratio 1:6:9. Calculate the largest share.

Answer Rs..... [2]

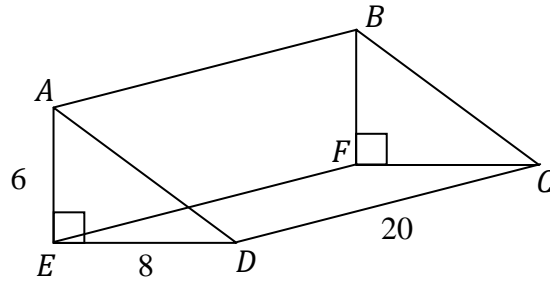
- (b) 550 tourists arrive at an airport. They have to travel to a hotel by bus. Each bus can carry a maximum of 60 tourists. What is the **least** number of buses needed?

Answer [2]

- (c) A man sold his car at Rs 360 000 to make a profit of 20%. Calculate the price at which he bought the car.

Answer Rs [3]

15. The diagram shows a **solid** prism $ABCDEF$ with $AE = BF = 6$ cm, $ED = FC = 8$ cm, $DC = EF = AB = 20$ cm and $\widehat{AED} = \widehat{BFC} = 90^\circ$.



- (a) Using Pythagoras theorem, calculate the length of AD .

Answer cm [2]

- (b) Find the area of the triangle ADE .

Answer cm^2 [2]

- (c) Calculate the total surface area of the solid prism.

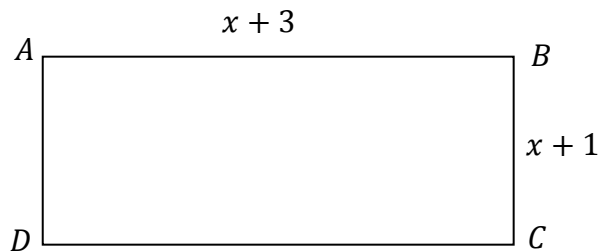
Answer cm^2 [3]

- (d) Find the volume of the prism.

Answer cm^3 [2]

16. $ABCD$ is a rectangle with $AB = (x + 3)$ cm and $BC = (x + 1)$ cm.

The area of the rectangle $ABCD$ is 24 cm^2 .



(a) Form an equation in x and show that it simplifies to $x^2 + 4x - 21 = 0$.

[3]

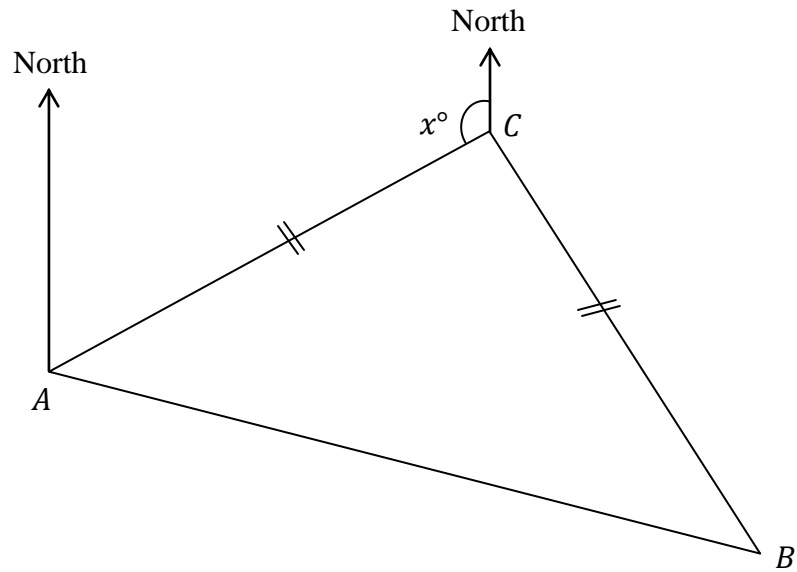
(b) Solve the equation $x^2 + 4x - 21 = 0$.

Answer $x = \dots\dots\dots$ or $\dots\dots\dots$ [3]

(c) Hence, find the length of AB .

Answer $AB = \dots\dots\dots$ cm [1]

17. Points A, B and C are on level ground. ABC is an isosceles triangle with $AC = BC$. The bearing of C from A is 075° . The bearing of B from A is 115° .



- (a) Find the value of x .

Answer [1]

- (b) Find the bearing of A from C .

Answer [1]

(c) Calculate $\hat{A}CB$.

Answer $\hat{A}CB = \dots\dots\dots$ [2]

(d) Find the bearing of B from C .

Answer $\dots\dots\dots$ [1]

18. (a) Expressed as the product of prime factors

$$60 = 2^2 \times 3 \times 5 \quad \text{and} \quad 36 = 2^2 \times 3^2.$$

Using the above results, or otherwise, find

(i) the highest common factor of 60 and 36.

Answer [1]

(ii) the smallest integer K, such that 60K is a square number.

Answer K = [2]

- (b) Three bells ring at intervals of 10, 15 and 20 minutes respectively. They start ringing together at 09 00.

At what time will they next ring together?

Answer [3]

- (c) Given that $x^2 + y^2 = 697$ and $xy = 336$, find the value of $(x - y)^2$.

Answer [3]

End of question paper

BLANK PAGE