



NAMIBIAN COLLEGE OF OPEN LEARNING

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NSSCO - GRADE 11

Mathematics

PAPER 1

MOCK EXAMINATION 2022

DATE : AUGUST 2022

MARKS : 80

DURATION : 2 HOURS

NAME :

STUDENT NUMBER :

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Candidates answer on the Question Paper in the spaces provided.
- Write your Name in the spaces provided on top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any diagrams, graphs.
- Do not use correction fluid, paper clips or glue.
- Answer **all** questions.
- If working is needed for any question it must be shown below that question.
- Electronic calculators should be used.
- If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
- For π , use either your calculator value or 3.142.
- At the end of the examination, fasten all your work securely together.
- The number of marks is given in brackets [] at the end of each question or part question.
- The total of the marks for this paper is 80.

- 1 Write down a prime number between 20 and 30.

..... [1]

- 2 Write 0.000 038 7 in standard form

..... [1]

- 3 Write the decimal 0.63 as a fraction.

..... [1]

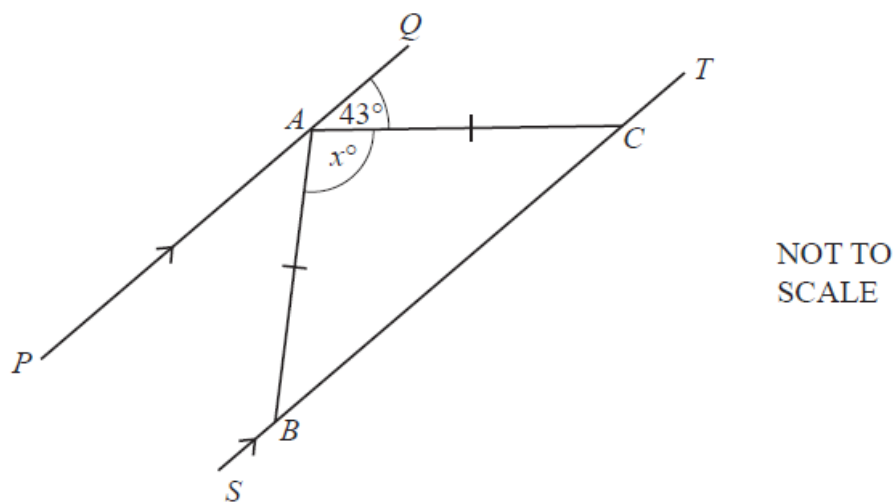
- 4 Find the value of $7x + 3y$ when $x = 12$ and $y = -6$.

..... [2]

- 5 Write 4647 correct to the nearest 100.

..... [1]

6



The diagram shows two parallel lines PAQ and $SBCT$.

$AB = AC$ and angle $QAC = 43^\circ$.

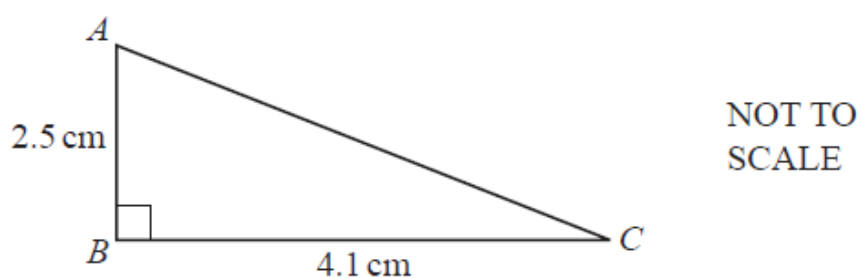
Find the value of x .

..... [2]

- 7 Calculate the area of a circle with radius 5.1 cm.

.....cm² [2]

8



Calculate the length of AC .

$AC =$ cm [2]

- 9 The n th term of a sequence is $5n - 3$.
Write down the first three terms of the sequence.

.....,, [1]

- 10 Expand and simplify.

$$6(2y - 3) - 5(y + 1)$$

..... [2]

11

$$3^{-q} \times \frac{1}{27} = 81$$

Find the value of q .

$q =$ [2]

- 12 (a) Calculate

$$\sqrt{2.38 + 6.4^2},$$

writing down your full calculator display.

..... [1]

- (b) Write your answer to **part (a)** correct to 4 decimal places.

..... [1]

- 13 Work out the lowest common multiple (LCM) of 18 and 21.

..... [2]

- 14 Find the exact value of

$$8^{\frac{2}{3}} \times 49^{-\frac{1}{2}}.$$

..... [2]

- 15 Solve the inequality.

$$3n - 5 > 17 + 8n$$

..... [2]

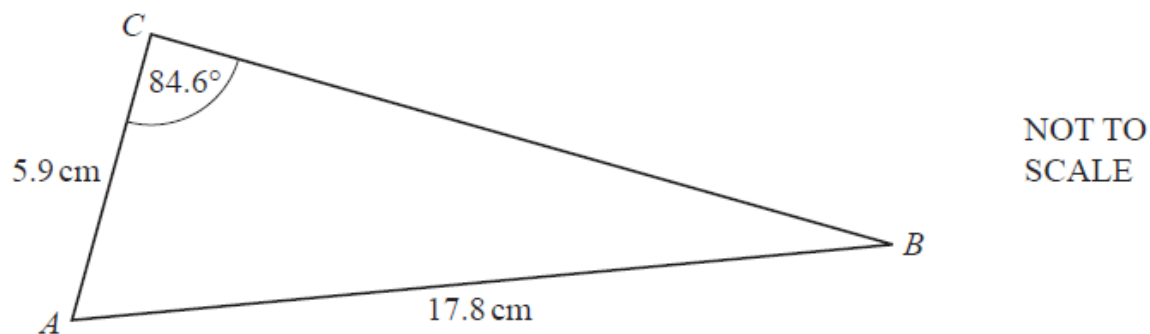
- 16 **Without using your calculator,** work out

$$1\frac{3}{4} \times \frac{6}{35}.$$

You must show all your working and give your answer as a fraction in its simplest form.

..... [3]

17



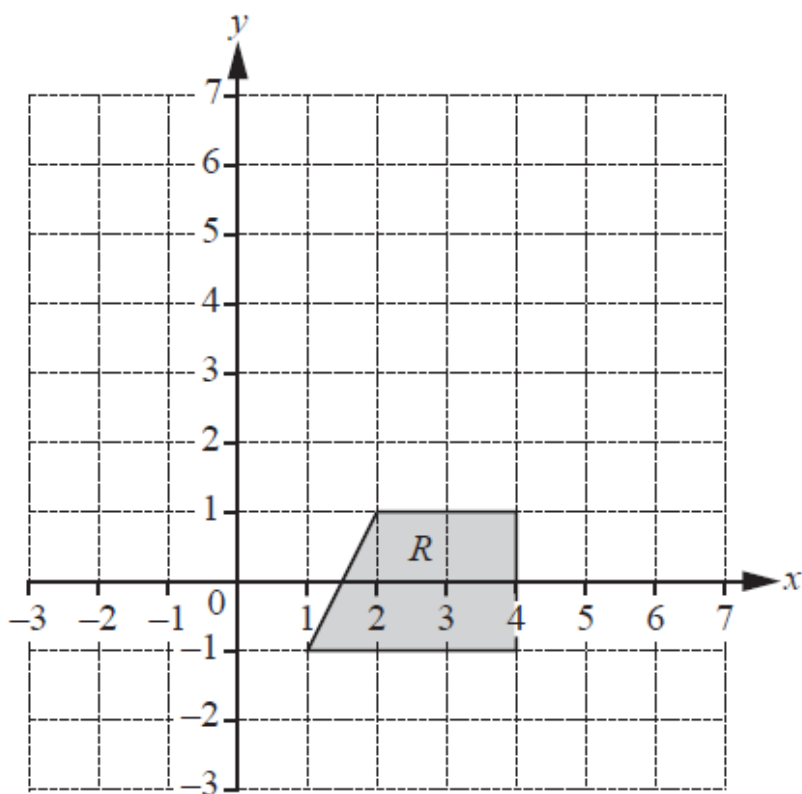
Use the sine rule to find angle ABC .

Angle $ABC = \dots\dots\dots$ [3]

- 18 y is directly proportional to $(x - 1)^2$.
 When $x = 5$, $y = 4$.
 Find y when $x = 7$.

$y = \dots\dots\dots$ [3]

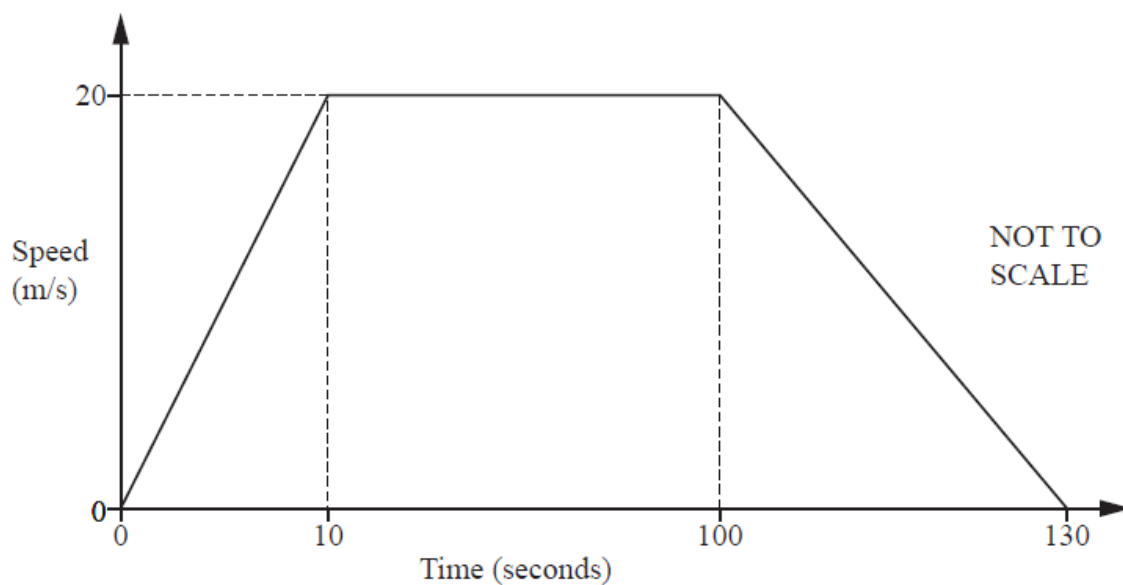
19



On the grid, draw the image of shape R after the reflection on $y = 3$.

[2]

20



The speed-time graph shows information about the journey of a tram between two stations.

- (a) Calculate the distance between the two stations.

..... m [3]

- (b) Calculate the average speed of the tram for the whole journey.

..... m/s [2]

- 21 Factorise completely.

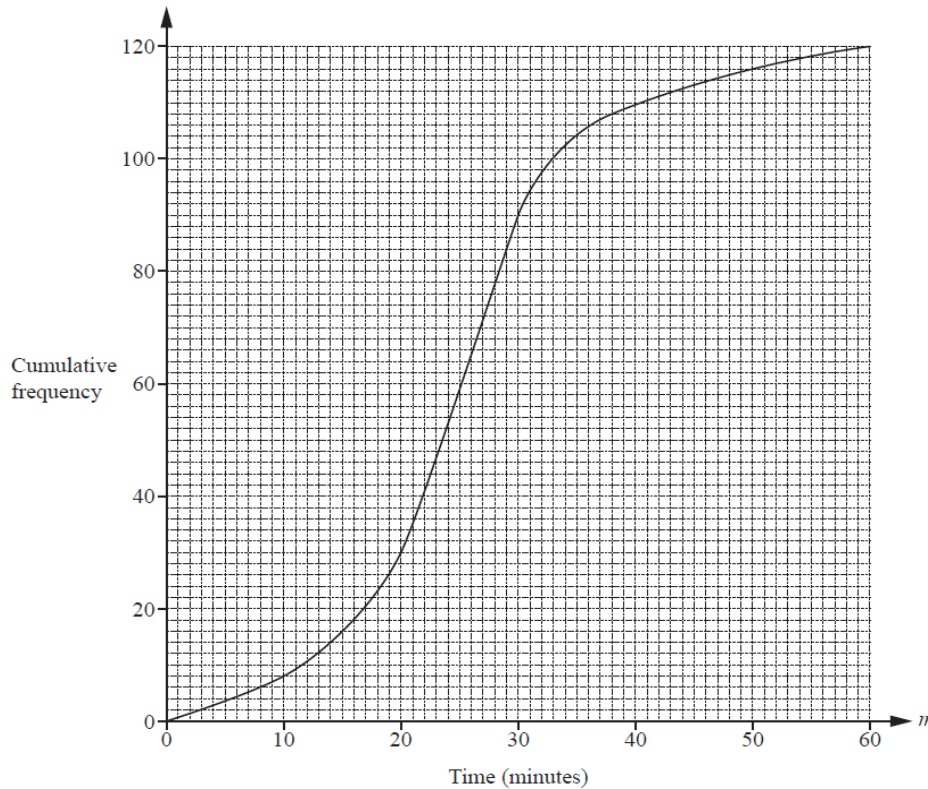
(a) $10 + 16w$

..... [1]

(b) $12tx - 8t^2$

..... [2]

- 22 The cumulative frequency diagram shows information about the time, m minutes, taken by 120 students to complete some homework.



Use the cumulative frequency diagram to find an estimate of

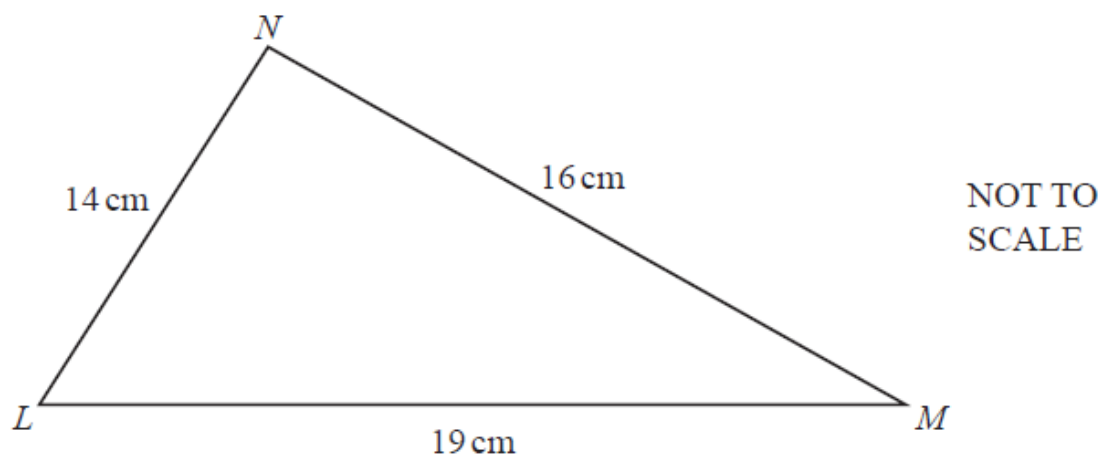
- (a) the interquartile range,

..... min [2]

- (b) the number of students who took more than 50 minutes to complete the homework.

..... [2]

23



Calculate angle LMN .

Angle $LMN = \dots\dots\dots$ [4]

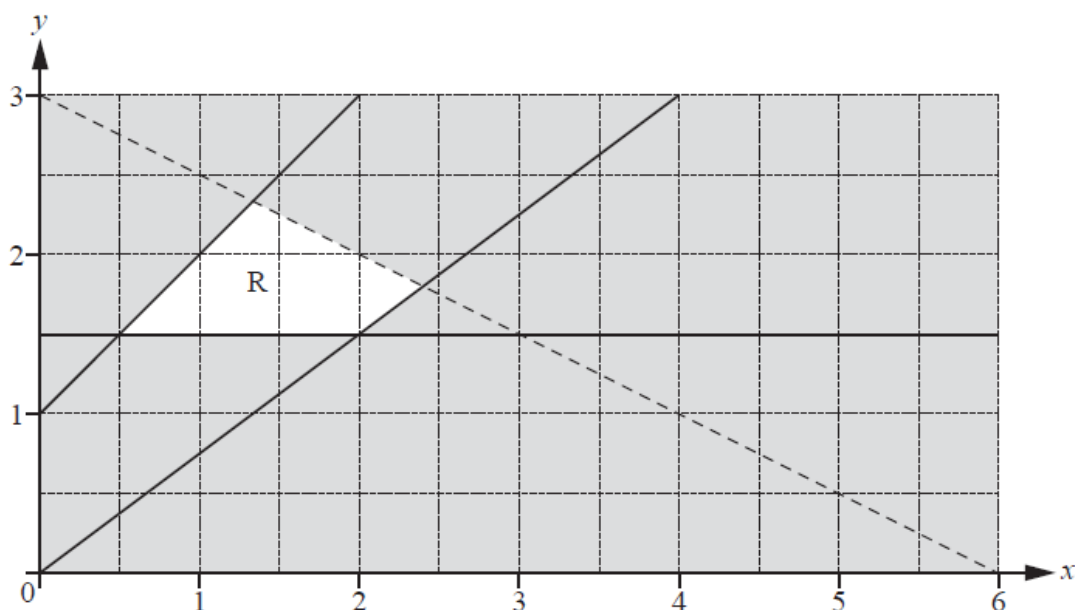
- 24 (a) A box contains 3 blue pens, 4 red pens and 8 green pens only.
A pen is chosen at random from the box.
Find the probability that tis pen is green.

$\dots\dots\dots$ [1]

- (b) Another box contains 7 black pens and 8 orange pens only.
Two pens are chosen at random from this box without replacement.
Calculate the probability that at least one orange pen is chosen.

$\dots\dots\dots$ [3]

25



There are four inequalities that define the region R.

One of these is $y \leq x + 1$.

Find the other three inequalities.

.....

 [4]

26 $f(x) = 5 - 2x$ $g(x) = x^2 + 8$

(a) Calculate $ff(-3)$.

..... [2]

(b) Find

(i) $g(2x)$,

..... [1]

(ii) $f^{-1}(x)$.

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

- 27 Solve the simultaneous equations.

You must show all your working.

$$3x + 10y = 106$$

$$5x - 4y = 1$$

x

y [3]

- 28 40 people were asked how many times they visited the cinema in one month.
The table shows the results.

| | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|
| Number of cinema visits | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Frequency | 5 | 5 | 6 | 6 | 7 | 3 | 6 | 2 |

- (a) (i) Find the mode.

..... [1]

- (ii) Calculate the mean.

..... [3]

- (b) Omar wants to show the information from the table in a pie chart.
Calculate the sector angle for the people who visited the cinema 5 times.

..... [2]

- 29 (a) Point A has co-ordinates $(1, 0)$ and point B has co-ordinates $(2, 5)$.
Calculate the angle between the line AB and the x -axis.

..... [3]

- (b) The line PQ has equation $y = 3x - 8$ and point P has co-ordinates $(6, 10)$.
Find the equation of the line that passes through P and is perpendicular to PQ .
Give your answer in the form $y = mx + c$.

$y =$ [3]

