

1. The first step in the process of identifying a problem is to recognize that a problem exists. This involves gathering information about the situation and identifying the specific issue that needs to be addressed.

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0178/01

October/November 2022

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions.

If working is needed for any question it must be shown below that question.
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 of the marks for this paper is 60.

This document consists of **10** printed pages and **2** blank pages.



1 (a) Work out.

(i) 2.5×0.2

..... [1]

(ii) $\frac{2}{3} - \frac{3}{5}$

..... [1]

(b) Evaluate.

$25 - 4 \div 20\%$

..... [2]

2 (a) Express 72 as a product of its prime factors.

..... [1]

(b) Find the smallest positive integer value n for which $72n$ is a cube number.

$n =$ [1]

3 (a) Express $33\frac{1}{3}\%$ as a fraction in its simplest form.

..... [2]

(b) Write $2\frac{2}{5}$ as a decimal.

..... [2]

4 $F = \frac{t+1}{3}$

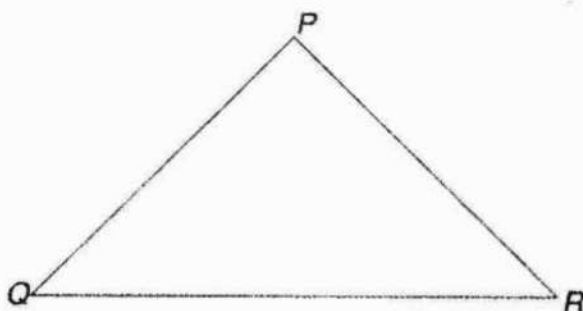
- (a) Find F when $t = -4$

..... [1]

- (b) Make t the subject of the formula.

$t =$ [2]

- 5 Construct the bisector of angle PQR in the triangle.



[2]

- 6 (a) Express 250 g to 2 kg as ratio in its simplest form.

..... [2]

- (b) Write the numbers in order of size, starting with the **smallest**.

33%, 0.34, $\frac{1}{3}$, $\sqrt{0.09}$

..... < < < [2]

7 (a) $f(x) = 2x + 5$.

Find $f(-1)$.

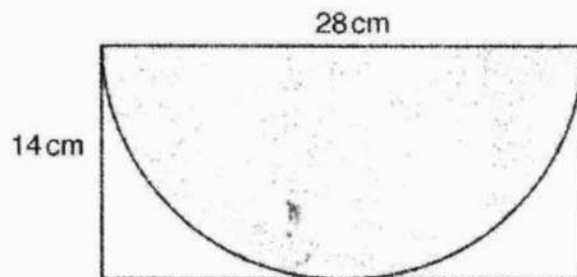
(b) Factorise fully.

$$1 - p^2$$

..... [2]

..... [2]

- 8 The diagram shows a rectangle with a semi-circle inside. The semi-circle touches the sides of the rectangle as shown. The length of a rectangle is 28 cm and width 14 cm.



NOT TO
SCALE

Use $\pi = \frac{22}{7}$.

Calculate

- (a) the area of the unshaded region,

..... cm^2 [3]

(b) the **total** perimeter of the semi-circle.

.....cm [3]

9 Find the value of

(a) $8^2 \div 2^{-3}$

..... [2]

(b) $\left(\frac{2}{9}\right)^{-1}$

..... [1]

(c) $36^{\frac{1}{2}}$

..... [1]

- 10 A bus travels 78 km at a speed of 65 km/h from Maseru to Mafeteng.

Calculate the length of time, in hours and minutes, the bus takes from Maseru to Mafeteng.

..... hrs min. [3]

- 11 Solve the equations.

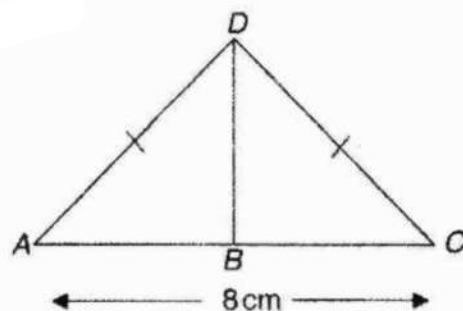
(a) $3x + 1 = 7$

(b) $2x - y = 5$
 $3x + 2y = 4$

..... [2]

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

- 12 The diagram shows an isosceles triangle ACD .
 $AC = 8$ cm.



NOT TO
SCALE

- (a) The area of the triangle is 12 cm^2 .

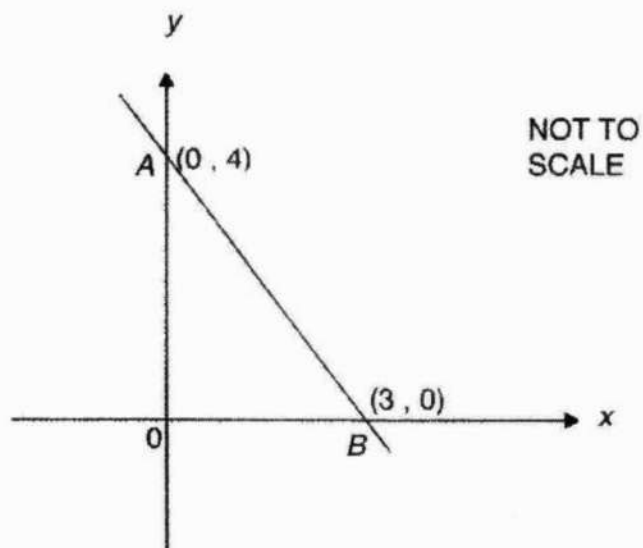
Find the length CD .

- (b) Write the value of $\tan \hat{DCB}$.

.....cm [3]

$\tan \hat{DCB} = \dots\dots\dots$ [1]

13 In the diagram, A is the point $(0, 4)$ and B is the point $(3, 0)$.



Find

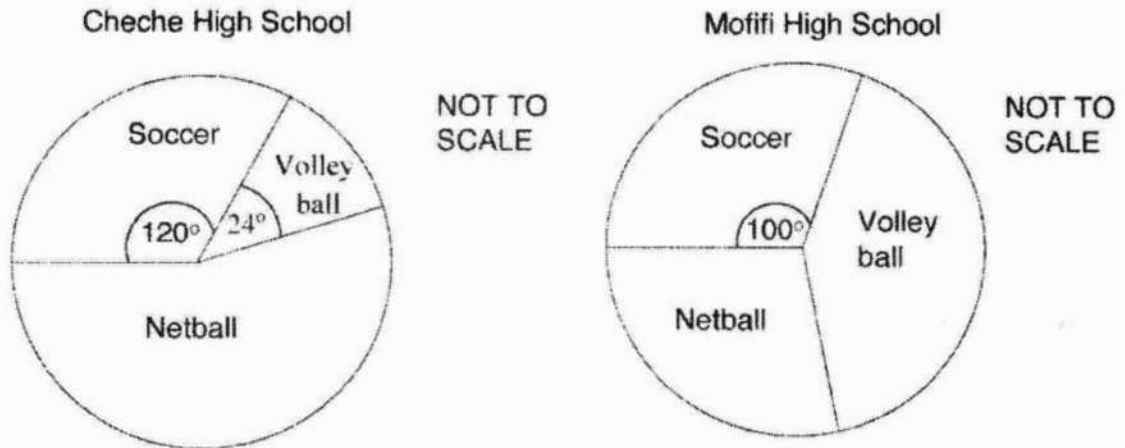
(a) the gradient of AB .

..... [2]

(b) the equation of the straight line AB .

..... [1]

- 14 The pie charts show the favourite sports of students from Cheche High School and Mofifi High School.



There are 125 students in each school who have their favourite sport as soccer.

- (a) Find the number of students at Cheche high school whose favourite sport is volley ball.

..... [2]

- (b) Show that there are more students at Mofifi high school than those at Cheche high school.

[3]

- 15** The coordinates of point R are (2, 3).

Find

- (a) the coordinates of point P such that R is the image of P after translation by vector $\begin{pmatrix} -5 \\ 12 \end{pmatrix}$.

..... [2]

- (b) the magnitude of $\begin{pmatrix} -5 \\ 12 \end{pmatrix}$.

..... [2]

- 16** A bag contains 8 beads.

There are 5 blue beads, 2 red beads and 1 green bead.

- (a) A bead is chosen at random.

Find the probability that the bead is red.

..... [1]

- (b) Two more green beads are put in the bag.

Find the probability of choosing a green bead.

..... [2]