CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

Candidates answer on the Question Paper.

Additional materials: Geometrical Instruments

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on the spaces provided.
Write in dark blue or black pen in the spaces provided on the Question Paper.
You may use a pencil for any diagrams or graphs.
Do **not** use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
All working should be clearly shown below each question.
The number of marks is given in brackets [ ] at the end of each question or part question.

Calculators should **not** 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.
3-figure tables may be used in any question where necessary.
The total of the marks for this paper is 100.

For Examiner's Use	
1	
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3	
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Total	

This document consists of **13** printed pages and **3** blank pages.

1   **(a)**   Express 250 m as a percentage of 2 km.

Answer (a)…………………………[2]

(b)   Vusi bought a motor bicycle for E 30 000.

He sold it at a loss of 20%.

Calculate the selling price of the motor bicycle.

Answer (b)……………………..[3]

(c)   On a particular day, the rate of exchange of the Lilangeni to the British Pound was
E 18.80 = £ 1.00.

(i)   Convert E 1 880.00 to British Pounds.

Answer (c)(i)..……………………[2]

(ii)   Find £ 80.00 in Emalangeni.

Answer (c)(ii)…………………… [2]

2 **(a)** In the national elections, 478 541 people participated.

    (i) Express the number of people correct to 3 significant figures.

Answer (a)(i)……………………..[1]

    (ii) Write your answer to part **(a)(i)** in standard form.

Answer (a)(ii)………………………[2]

(b) The population of a village is 18 700 correct to the nearest 50.

Find the upper and lower bounds of the population.

Answer (b)…………………………[3]

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3 Work out, giving your answers in standard form.

(a) $(2.3 \times 10^{-7}) \times (4 \times 10^{5})$

Answer (a)…………………………[2]

(b) $(7.3 \times 10^{8}) - (9.2 \times 10^{7})$

Answer (b)……………………………[3]

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4   **(a)**   A straight line passes through the points (3 , 6) and (5 , 2).

   (i)   Calculate the gradient of the line.

Answer (a)(i)………………………….[2]

   (ii)   Find the *y* – intercept of the line.

Answer (a)(ii)………………..………[2]

   (iii)   Hence, write down the equation of the line.

Answer (a)(iii)……..………………..[1]

   (b)   Solve the equations

   (i) $3(4t-1)-2(5t+3)=3$,

Answer (b)(i) t = ………………………[3]

   (ii) $\dfrac{3}{x}+\dfrac{5}{2}=7$.

Answer (b)(ii) x = ………..……………[3]

(c) Solve the inequality $12 + 4p > 2 - p$.

Answer (c)………………………….[3]

5 **(a)** If $s = -5$ and $t = 3$, work out the value of the following.

(i) $7 - 3st$

Answer (a)(i)……………………………[2]

(ii) $\dfrac{t}{5} + \dfrac{s^2}{20}$

Answer (a)(ii)……………………………[3]

(b) Simplify

(i) $4x(2py - 3qy) + 3y(qx + 7px)$,

Answer (b)(i)………………..………….[3]

(ii) $\dfrac{t-3}{7} - \dfrac{2t-1}{3}$,

Answer (b)(ii)………………………..[3]

(iii) $\quad \dfrac{x-1}{3} \div \dfrac{x}{4}$.

Answer (b)(iii)………………………..[3]

(c) The width of a rectangle is 3 cm shorter than the length of the rectangle. Write and simplify an expression for the perimeter of the rectangle if the length of the rectangle is x cm.

Answer (c)…………………………[2]

6 Thabo's home (T) is 3 km from a shop(S).
The bearing of the shop from Thabo's home is $070°$.
A police station (P) is 5 km from the shop on a bearing of $130°$.

(a) Draw a rough sketch to show the positions of Thabo's home, the shop and the police station.

[2]

(b) Using a scale of 1 cm to represent 500 m and the given north line, make a scale drawing showing the positions of Thabo's home, the shop and the police station.

[4]

(c) Find the direct distance from Thabo's home to the police station.

Answer (c)…………………………[2]

(d) Find the bearing of the police station from Thabo's home.

Answer (d)…………………………[1]

(e) A sports ground is equidistant from *P* and *S*, and is also equidistant from *PS* and *PT* on your diagram:

    (i) construct the locus of points equidistant from the *P* and *S*, [2]

    (ii) construct the locus of points equidistant from *PS* and *PT*, [2]

    (iii) Mark the position of the sports ground with the letter *X*. [1]

(f) Write down the distance of the sports ground from Thabo's home.

Answer (f)………………………..[2]

7   The distribution below shows the body masses, in kilograms, of a group of students.

55	57	55	56	58	56	57	55	59
60	55	58	56	55	57	57	56	57
59	58	57	59	57	56	60		

(a)   Complete the following frequency table for the data.

Mass (kg)	Tally marks	Frequency
55		
56		
57		
58		
59		
60		

[4]

(b)   Write down the modal mass of the students.

Answer (b)………………………..[1]

(c)   Find the median mass.

Answer (c)…………………………[2]

(d)   Calculate the mean mass of the students.

Answer (d)……………………………………[3]

8 The bar chart shows different colours of T-shirts worn by a group of students.
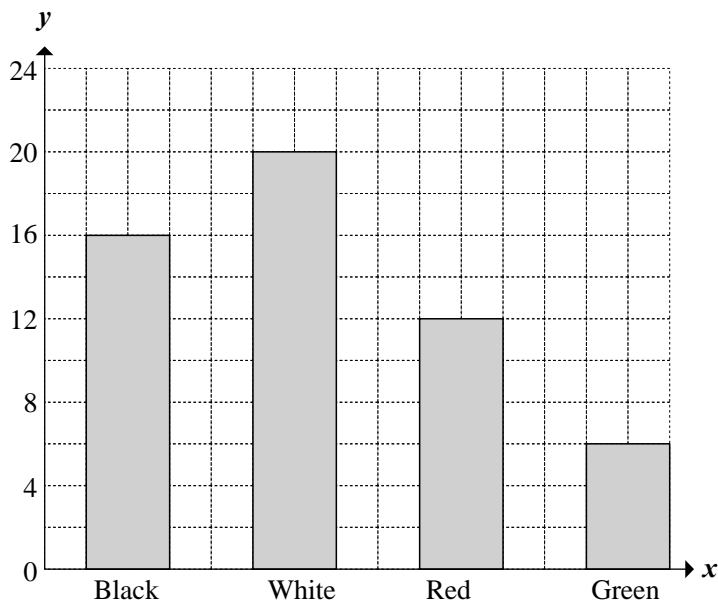
(a) Find the total number of students.

Answer (a)…………………………[1]

(b) A student, is chosen at random, from this group.
Write down the probability that the student is

(i) wearing a black T-shirt,

Answer (b)(i)…………………………[1]
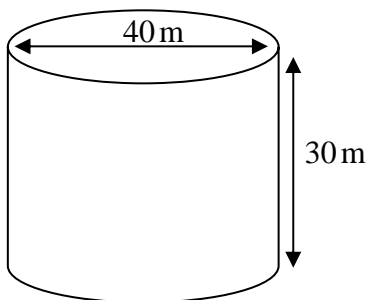
(ii) wearing a white or green T-shirt,

Answer (b)(ii)…………………………[2]

(iii) wearing a grey T-shirt.

Answer (b)(iii)………………………[1]

   [Turn over

9   A cylindrical water storage tank is 30 m high.

The diameter of the base is 40 m.

NOT TO SCALE

Take π as 3.14 for this question.

(a)   Find the volume of water that can fill up the tank.

Answer (a)……………………….[3]
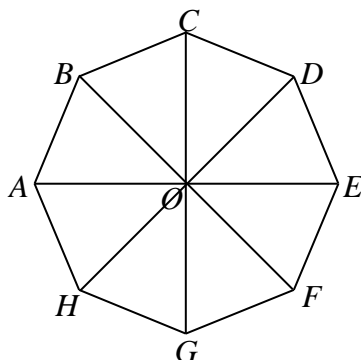
(b)   Calculate

(i)   the curved surface area of the tank,

Answer (b)(i)…………………………[2]

(ii)   the total surface area of the tank if the two ends are closed.

Answer (b)(ii)………… ………………[3]

10 *ABCDEFGH* is a regular polygon with centre *O*.

NOT TO SCALE

(a) Write down the special name of the polygon.

Answer (a)………………………..[1]

(b) Calculate the size of $A\hat{O}B$.

Answer (b)……………………….[2]

(c) Calculate the size of $A\hat{B}C$.

Answer (c)……………………….[3]

(d) Describe fully the single transformation which maps triangle *AOB* onto triangle *EOD*.

Answer (d)…………………………………………………………………………………...

………………………………………………………………………………………...........

……………………………………………………………………………………………[2]

(e) Describe fully the single transformation which maps triangle *HOA* onto triangle *BOC*.

Answer (e)……………………………………………………………………………………

……………………………………………………………………………………………..

……………………………………………………………………………………………..

……………………………………………………………………………………………..[3]

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