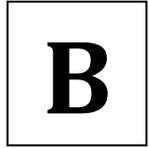


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Boys Secondary School, Kirkop



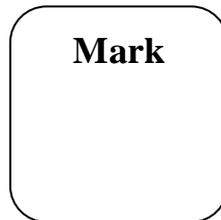
HALF-YEARLY EXAMINATIONS – FEBRUARY 2014

FORM 4

MATHEMATICS Scheme B

TIME: 20 mins

Non Calculator Paper



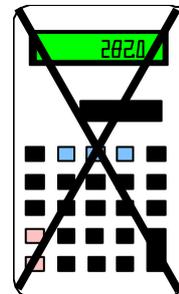
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NAME AND SURNAME: _____ **CLASS:** _____

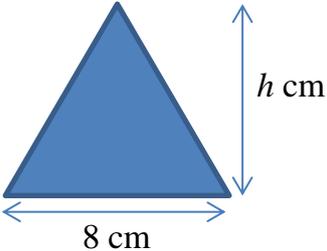
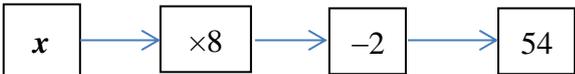
INSTRUCTIONS TO CANDIDATES:

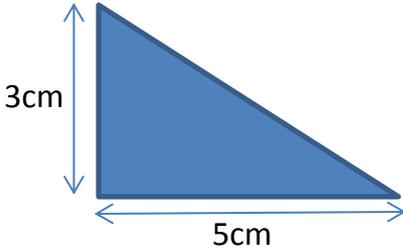
Read all the questions carefully before you start answering.

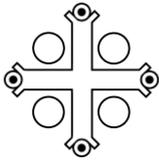
- Answer all questions.
- This paper carries 20 marks.
- **Calculators, protractors** and other mathematical instruments are **NOT ALLOWED**.
- On your desk you should have nothing except for **pen, pencil, ruler** and the **examination paper**.
- You are not required to show your working. However, space for working is provided if you need it.



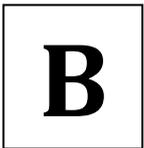
No.	Question	Space for working, if required.
1	Which of the following is the biggest number? 0.333, $\frac{1}{3}$, 0.3 Ans: _____	
2	Only one of the following statements is false . <u>Underline</u> the false statement. a) 7 is a factor of 77. b) 27 is a square number. c) 37 is a prime number. d) 57 is a multiple of 3.	
3	A company has 350 workers. $\frac{3}{5}$ of the workers are female . $\frac{2}{7}$ of these female workers are part-timers . Find the number of female part-time workers. Ans: _____	
4	Write 0.000451 in standard form. Ans: _____	
5	Evaluate: $9^2 + 9^1 + 9^0$ Ans: _____	
6	How many centimetres are there in 1 km? Ans: _____ cm	

7	<p>An athlete runs 100 metres in 10 sec. Work out the speed in km/hr.</p> <p style="text-align: right;">Ans:_____ km/hr</p>	
8	<p>Multiply 62 by 15.</p> <p style="text-align: right;">Ans:_____</p>	
9	<p>Work out the value of $10 - x^2$, given that $x = 3$</p> <p style="text-align: right;">Ans:_____</p>	
10	<p>A can of lemonade costs 52cents. What is the largest number of cans that can be bought for €10?</p> <p style="text-align: right;">Ans:_____ cans</p>	
11	<p>The area of triangle is 20 cm^2. Work out the height h of the triangle.</p> <div style="text-align: center;">  <p>The diagram shows a blue triangle with a horizontal base. Below the base is a double-headed arrow labeled "8 cm". To the right of the triangle, a vertical double-headed arrow extends from the level of the base to the top vertex, labeled "h cm".</p> </div> <p style="text-align: right;">Ans:_____ cm</p>	
12	<p>Estimate the circumference of a circle having a diameter of 14 cm. (Take $\pi = \frac{22}{7}$)</p> <p style="text-align: right;">Ans:_____ cm</p>	
13	<p>Work out the value of x.</p> <div style="text-align: center;">  <p>The flowchart consists of four boxes connected by arrows from left to right. The first box contains 'x', the second contains '×8', the third contains '-2', and the fourth contains '54'.</p> </div> <p style="text-align: right;">Ans:_____</p>	

14	<p>Write down an estimate for</p> $5.02 \times (9.93 - 1.88)$ <p>Ans: _____</p>	
15	<p>Write $\frac{8}{25}$ as a decimal.</p> <p>Ans: _____</p>	
16	<p>Underline the largest number.</p> <p>a) 1^9 b) $\sqrt{100}$ c) 3^2 d) 2^3</p>	
17	<p>Which is the best estimate of the hypotenuse?</p> <p>a) 6cm b) 7cm c) 8cm d) 10cm</p>  <p>Ans: _____</p>	
18	<p>Fill in with +, -, × or ÷</p> $20 \text{ ____ } 5 + 300 \text{ ____ } 6 = 150$ <p>Ans: _____</p>	
19	<p>Write down the missing numbers.</p> <p>a) 15, 10, 5, 0, _____ b) 1, 3, 9, _____, 81</p>	
20	<p>Work out $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$.</p> <p>Ans: _____</p>	



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HALF-YEARLY EXAMINATIONS – FEBRUARY 2014

FORM 4

MATHEMATICS Scheme B

TIME: 1hr 40mins

Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Main	NC	Global Mark
Mark																

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NAME AND SURNAME: _____ **CLASS:** _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.
- This paper carries 80 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1. (a) Give a number which is:

(i) a prime number
an even number }

(ii) a factor of 24
a multiple of 3
less than 10 }

(b) Complete the missing numbers:

(i) $6^{\square} = 36$

(ii) $5^6 \times 5^{\square} = 5^4$

(c) Put > or < : (i) $3^4 \square 4^2$

(ii) $3^1 \square 1^3$

(6 marks)

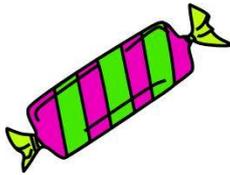
2. (a) Use your calculator to work out the following, giving your answer correct to **3 significant figures**:

(i) $\sqrt{35} =$ _____

(ii) $\frac{5.32^2 \times 4.17}{1.8 + 3.7} =$ _____

- (b) Alexia buys sweets at a sweet shop.
She picks up sweets that cost €3.25 per kg. Her bag weighs 0.561 kg.

- (i) **Estimate** the cost of the sweets by rounding each number correct to **1 significant figure**.



Answer: € _____

- (ii) Work out the **exact price** of the sweets.
Give your answer to **the nearest cent**.

Answer: € _____

(6 marks)

-
3. (a) Find the **10th** term of a sequence, given that the ***n*th** term is **$5 - 3n$** .

Answer: _____

- (b) A house is built by 30 workers in 20 days.

- (i) How long would it take 40 workers to build the same house?

Answer: _____ days

- (ii) How many workers would be needed to build the same house in 25 days?

Answer: _____ workers

(5 marks)

4. (a) Make x the subject of the formula: $x + 3y = 2z$

Answer: $x =$ _____

(b) Look at the formula $a = \frac{b - 1}{5}$.

(i) Find the value of a when $b = -19$.

Answer: $a =$ _____

(ii) Re-arrange the formula $a = \frac{b - 1}{5}$ to make b the subject.

Answer: $b =$ _____

(iii) Find the value of b when $a = 10$.

Answer: $b =$ _____

(6 marks)

5. **Example:** The prime factors of 18 are: $18 = 2 \times 3 \times 3 = 2 \times 3^2$

a) Express the following as a product of prime factors:

i) 36

ii) 60

Answer: $36 =$ _____

Answer: $60 =$ _____

b) Andrew plants trees in rows of 36 while his friend Ella plants trees in rows of 60. If they have to plant the same number of plants, what is the **smallest** number that each will have to plant, and still have **full** rows planted?

Answer: _____ plants

(7 marks)

6. (a) Write in order, smallest first: $\frac{3}{4}$, $\frac{5}{8}$, 0.52 , 0.9

Answer: _____

- (b) (i) An American tourist changes **\$850 to euro (€)** when the exchange rate is **€1 = \$1.356**.

Calculate the amount he receives. Give your answer correct to **2 decimal places**.

Answer: € _____

- (ii) The tourist returns home with **€150** and changes it back into US Dollars(\$). How much is this amount worth in \$?

Answer: \$ _____

(6 marks)

7. Aluminium flowerpots, shaped like cylinders, are 12.5 cm high and have a diameter of 25.8 cm.

There is a **bottom** on each pot, but **no top**.

Calculate the surface area of aluminium needed for each pot, giving your answer correct to the nearest cm^2 .

Answer: _____ cm^2

(6 marks)

8. (a) **Simplify** these algebraic expressions.

(i) $7a - 3a^2 - 10a + 5a^2$

Answer: _____

(ii) $\frac{5x}{2} + \frac{2(x-1)}{3}$

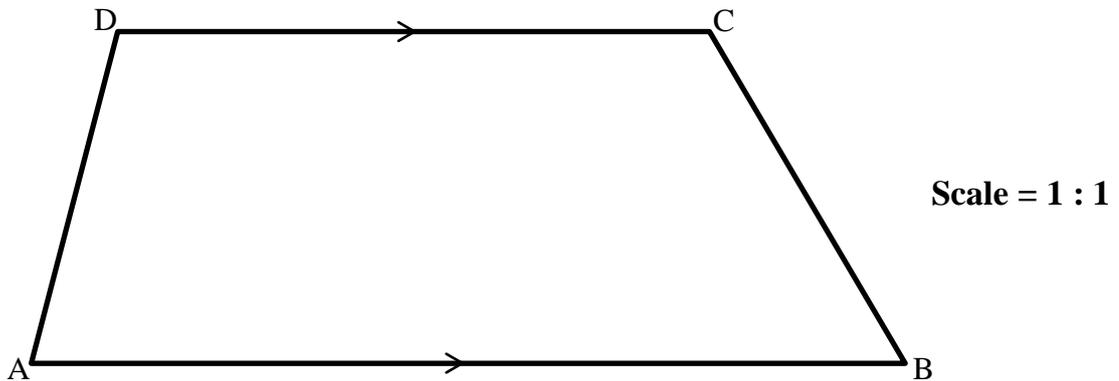
Answer: _____

(b) **Solve:** $4(3x - 1) - 2(x + 5) = 26$

Answer: _____

(8 marks)

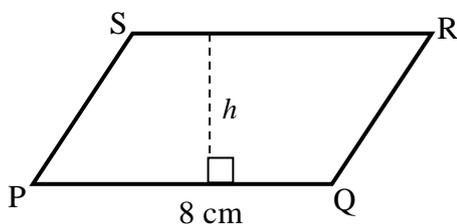
9. (a) The diagram shows a scale drawing of trapezium ABCD.



- (i) On the diagram, measure and label the dimensions needed to find the area of this trapezium.
- (ii) Calculate the **area** of trapezium ABCD, correct to **2 decimal places**.

Answer: _____ cm²

- (b) The following parallelogram PQRS has the **same area** as trapezium ABCD in (a). Calculate the **height h** of the parallelogram, giving your answer correct to the **nearest cm**.

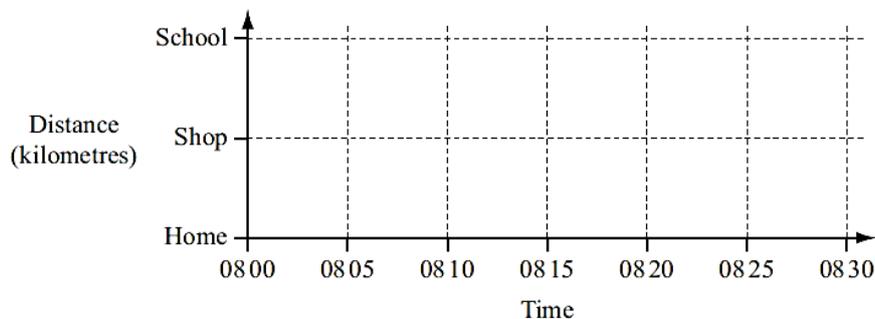


Answer: $h =$ _____ cm

(7 marks)

10. (a) Mark walks to school each morning. One day, he leaves home at 08:00. He stops at a shop at 08:10 and stays there for 5 minutes. He then continues to school and arrives at 08:30.

- (i) Draw the travel graph for Mark's journey from home to school.



- (ii) Mark's school is **1.25 km** away from his home.
Calculate his average speed, for the whole journey, in **km/hr**.

Answer: _____ km/hr

- (b) Bob and Kevin are having a race in their sport cars. Bob drives his car at an average speed of 200 km/hr and Kevin at an average speed of 160 km/hr.

- (i) After $1\frac{1}{2}$ hours Bob finishes the race.
Calculate the **distance** that Bob travels.

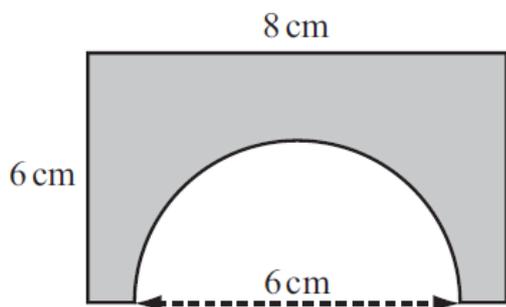
Answer: Distance = _____ km

- (ii) Calculate the **time**, in **hours**, taken by Kevin to finish the race.

Answer: Time = _____ hours

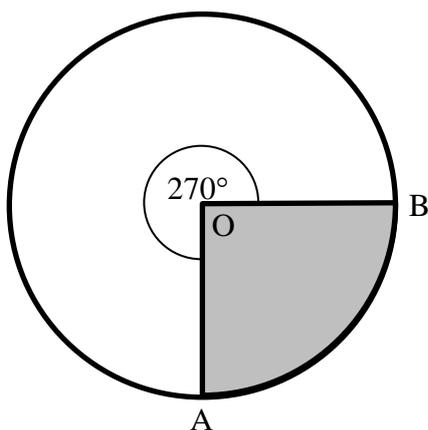
(7 marks)

11. (a) A semicircle of diameter 6 cm is cut from a rectangle with sides 6 cm and 8 cm. Calculate the **shaded area**, correct to **1 decimal place**.



Answer: Area = _____ cm^2

- (b) The diagram shows a circle with **radius 5.5 cm**, divided into 2 sectors.



- (i) What **fraction** of the circle is the shaded sector AOB?

Answer: _____

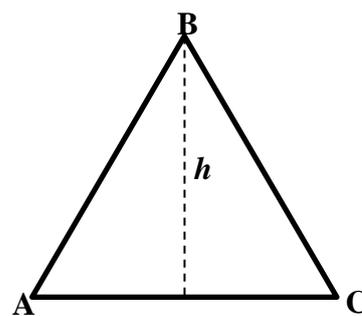
- (ii) Work out the **length of the minor arc AB**, correct to **1 decimal place**.

Answer: Length of arc AB = _____ cm

(8 marks)

12. Triangle ABC is an equilateral triangle of side 4.6cm.

- (a) (i) Work out the length of the perpendicular height, h , correct to **3 significant figures**.

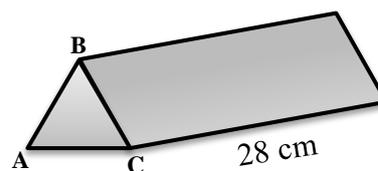


Answer: $h =$ _____ cm

- (ii) Hence find the area of triangle ABC, correct to **3 decimal places**.

Answer: _____ cm^2

- (b) Triangle ABC is the cross-section of a chocolate tube, which is 28 cm long.
Calculate the volume of the tube. Give your answer correct to the nearest cm^3 .



Answer: _____ cm^3

- (c) These chocolate tubes are packed in **cylindrical** gift packs of radius 10 cm and length 30 cm.

How many chocolate tubes can be fitted in 1 gift pack?

Answer: _____ tubes

(8 marks)

END OF PAPER