



**Annual Examinations for Secondary Schools 2015**

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**FORM 5**

**MATHEMATICS TRACK 1**  
**Non Calculator Paper**

**TIME: 20 minutes**

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**Name:** \_\_\_\_\_


**Class:** \_\_\_\_\_


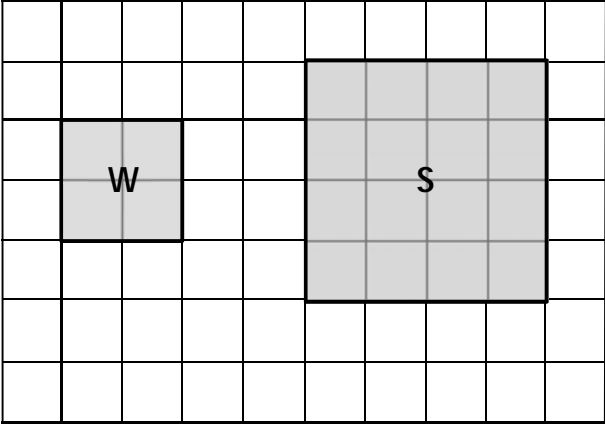
Mark

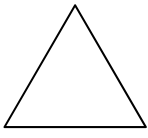
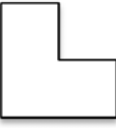

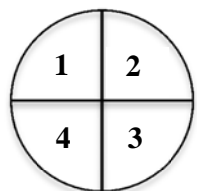
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**Instructions to Candidates**

- **Answer ALL questions.**
  - **This paper carries a total of 20 marks. Each question carries 1 mark.**
  - **Calculators and protractors are not allowed.**
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No.	Question	Space for Working
1	Work out:  $2 - \frac{3}{5}$ Ans: _____	
2	Match the following:  $\begin{array}{ll} -6 + -4 & 2 \times 6 \\ -1 \times -10 & -1 \times 10 \\ -3 \times -4 & 5 \times 2 \end{array}$ 	
3	Fill in the missing term in the sequence below.  1, 4, 9, 16, _____, 36	
4	A <b>square</b> has a perimeter of 40 cm. Work out the <b>length</b> of one of its sides.        Ans: _____ cm	
5	Put in order, <b>smallest to largest</b> .  A. -1.9    B. 0.78    C. -2.01    D. 8.01  Ans: _____, _____, _____, _____	
6	Alan thinks of a number. Here are some hints! The number is: <ul style="list-style-type: none"> <li>• Greater than 20 but less than 40</li> <li>• A multiple of 5</li> <li>• <b>Not</b> odd</li> </ul>    The <b>number</b> is _____	
7	The angles of a quadrilateral are $x$ , $2x$ , $3x$ and $4x$ . <b>Work out</b> the size of angle $x$ .        Ans: $x =$ _____ °	

No.	Question	Space for Working
8	<p>Given that <math>d = 6</math> and <math>e = 4</math>, <u>underline</u> the expression which gives a value of 1.5.</p> <p style="text-align: center;"><math>de</math>                  <math>\frac{d}{e}</math>                  <math>d - e</math></p>	
9	<p>A shirt costs €10. In a sale, the price is <b>reduced</b> by 20%. How much does it cost during the sale?</p> <div style="text-align: right;">  </div> <p style="text-align: center;">Ans: € _____</p>	
10	<div style="text-align: center;">  </div> <p><b>Underline</b> the correct one:</p> <p>S is (a reflection, a rotation, an enlargement) of W.</p>	
11	<p>In a <b>right-angled triangle</b> there is an angle of <math>42^\circ</math>. Work out the value of the <b>other</b> angle.</p> <div style="display: flex; align-items: center; justify-content: space-between;"> <div data-bbox="365 1348 506 1465"> </div> <div data-bbox="852 1428 1063 1465">             Ans: _____<sup>o</sup> </div> </div>	
12	<p><math>3(2x + 1)</math> is the <b>same</b> as:</p> <p style="text-align: center;">A. <math>6x + 3</math>                  B. <math>5x + 4</math>                  C. <math>6x + 1</math></p> <p style="text-align: right;">Ans: _____</p>	
13	<p>Paul leaves home at 07:20. He walks to school and arrives at <b>quarter to 8</b>. How long, in minutes, does it take him?</p> <p style="text-align: right;">Ans: _____ minutes</p>	

No.	Question	Space for Working
14	<p>Shade the shape with <b>one line of symmetry</b> and <b>no rotational symmetry</b>.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>equilateral</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	
15	<p>The circumference <math>C</math> of a circular swimming pool is 30 m. Use <math>C = \pi d</math> to <b>work out</b> the diameter <math>d</math> of the swimming pool. (Take <math>\pi = 3</math>)</p> <p style="text-align: right;">Diameter = _____ m</p>	
16	<p><b>How many cubes</b> of side 2 cm can be cut out of a larger <b>cube</b> of side 4 cm?</p> <p style="text-align: right;">Ans: _____ cubes</p>	
17	<p><u>Underline</u> the <b>prime</b> number.</p> <p style="text-align: center;">A. 36      B. 37      C. 38      D. 39</p>	
18	<p>An ice cream costs €2.65. <b>How many</b> ice creams can I buy with €10?</p> <p style="text-align: right;">Ans: _____ ice creams</p>	
19	<p>Joe turns a fair 4-numbered spinner. The probability that Joe gets a number which is a <b>factor of 12</b> is:</p> <p style="text-align: center;">A. 0      B. <math>\frac{1}{2}</math>      C. 1</p> <div style="text-align: right;">  </div>	
20	<p>The set of numbers have a <b>range</b> of 6. Fill in the missing number.</p> <div style="text-align: center; border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">5</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">7</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">8</div> </div> </div>	



**Annual Examinations for Secondary Schools 2015**

**FORM 5**

**MATHEMATICS TRACK 1**  
**Main Paper**

**TIME: 1h 40min**

Question	1	2	3	4	5	6	7	8	9	10	11	12	Main	Non Calculator	Total
Mark															

Name: \_\_\_\_\_

Class: \_\_\_\_\_

**Instructions to Candidates**

- Answer ALL questions.
- This paper carries a total of 80 marks.
- Calculators are allowed. Show all necessary working.

1. Match each percentage to a fraction.

25%

$\frac{1}{2}$

50%

$\frac{1}{5}$

75%

$\frac{1}{4}$

20%

$\frac{3}{4}$

(4 marks)

2. Put the signs  $+$ ,  $-$ ,  $\times$ ,  $\div$  in the space indicated for the following calculations.

**Note:** All signs must be used only **once!**

a)  $7 \square 2 = 6 \square 8$

b)  $22 \square 20 \square 2 = 12$

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(4 marks)

3. a) **Fill in** to reduce this fraction to its lowest terms:

$$\frac{24}{30} = \frac{\quad}{10} = \frac{4}{\quad}$$

b) **Fill in** to change this mixed number into an improper fraction:

$$2\frac{3}{5} = \frac{\quad}{5}$$

c) **Fill in** to subtract these two fractions:

$$\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{\quad}{6} = \frac{\quad}{6}$$

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(6 marks)

Name: \_\_\_\_\_ Class: \_\_\_\_\_

4. In a class there are 24 students.  
**Half** of the class study **Italian** and  $\frac{3}{8}$  of the class study **French**.  
 The rest take **Spanish**.



Work out:

- a) the number of students that study **Italian**.

\_\_\_\_\_ students

- b) the number of students that study **French**.

\_\_\_\_\_ students

- c) the number of students that study **Spanish**.

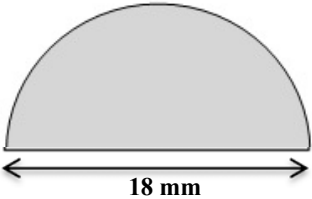
\_\_\_\_\_ students

(6 marks)

5. A **semicircle** has a diameter of 18 mm.

- a) The radius of the semicircle = \_\_\_\_\_ mm.

- b) The **area** (A) of a **circle** can be found using the formula  $A = \pi r^2$ .  
 Work out the area of the semicircle. (Give answer correct to the **nearest whole number**.)



Area = \_\_\_\_\_ mm<sup>2</sup>

(5 marks)

6. Chris thinks of a number N. He **divides** his number by 2 and then **subtracts** 9 from it.

a) Chris writes a formula for this. Underline the correct one.

$$2N - 9 \qquad \frac{N - 9}{2} \qquad \frac{N}{2} - 9$$

b) Use the formula you underlined in question a) to **work out** the result when  $N = 30$ .

Result = \_\_\_\_\_

c) Chris needs to find the **value of N** that gives a result of 0.

i) Will the **value of N** be **greater** or **smaller** than 30?

The value of N will be \_\_\_\_\_

ii) Work out the **value of N** so that the result is 0.

N = \_\_\_\_\_

(7 marks)

7. Matt throws a fair six-sided die and tosses a fair coin.

a) **Fill in** the possibility space below.

		Die					
		1	2	3	4	5	6
Coin	Heads	H1	H2			H5	
	Tails			T3	T4		T6



b) Use the possibility space to work out the **probability** that Matt gets:

i) **Heads** with an **even** number.

Ans: \_\_\_\_\_

ii) **Tails** with a number **less than 3**.

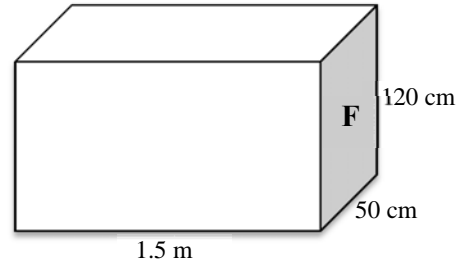
Ans: \_\_\_\_\_

(7 marks)



8. The figure shows a water tank in the form of a cuboid.

a) Work out the **area** of face **F**.



Area = \_\_\_\_\_ cm<sup>2</sup>

b) **Fill in:**

Given that 1 m = 100 cm, 1.5 m = \_\_\_\_\_ cm.

c) The tank is full of water. **Work out** the **volume** of the water in the tank in cm<sup>3</sup>.

Volume = \_\_\_\_\_ cm<sup>3</sup>

(7 marks)

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9. A group of students took the following temperature readings (°C) during an experiment.

15    18    19    16    17    20    18    17    16    14    16

**Work out:**

a) the **mean** temperature during the experiment.

\_\_\_\_\_ °C

b) the **mode** temperature reading.

\_\_\_\_\_ °C

c) the **median** temperature reading.

\_\_\_\_\_ °C

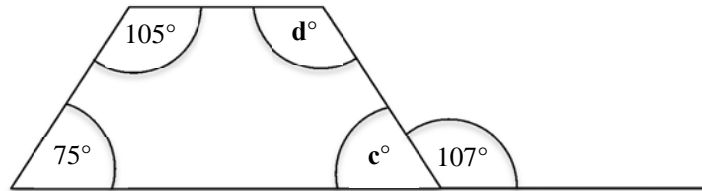
(6 marks)

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10. a) **Underline** the correct one in the following statements.

- i) A triangle (can, cannot) have two right angles.
- ii) The angles in a quadrilateral add up to ( $180^\circ$ ,  $270^\circ$ ,  $360^\circ$ ).

b)



- i) **Work out** the size of angle **c**. **Underline** the correct reason.

$$c = \underline{\hspace{2cm}}^\circ$$

Reason: Angles at a point, Angles in a quadrilateral, Angles on a straight line

- ii) **Work out** the size of angle **d**. **Underline** the correct reason.

$$d = \underline{\hspace{2cm}}^\circ$$

Reason: Angles at a point, Angles in a quadrilateral, Angles on a straight line

- iii) **Underline** and **fill in:**

The **quadrilateral** is a (parallelogram, rhombus, trapezium) because \_\_\_\_\_

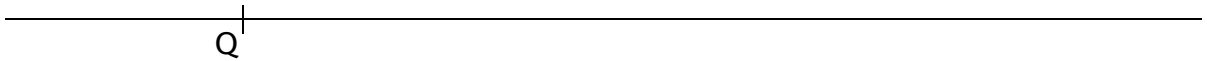
\_\_\_\_\_

(10 marks)

11. Triangle PQR is **right-angled** at Q. Length QR = 12 cm and length QP = 5 cm.

- a) In the space below, draw a **sketch** (not to scale) of the triangle.  
Include the details given above.

- b) In the space below, use **ruler and compasses only** to construct triangle PQR.  
All **construction lines** must be shown.



- c) Use a **ruler to measure** the length of side **PR**.  
Try to be as accurate as possible.

PR = \_\_\_\_\_ cm

(8 marks)

12. a) You are asked to solve the equation  $\frac{3x - 5}{2} = 8$ .

Look at the following two workings.

**Working A**

$$\begin{aligned} 3x - 5 &= 2 \times 8 \\ 3x &= 16 + 5 \\ 3x &= 21 \\ x &= \frac{21}{3} \\ x &= 7 \end{aligned}$$

**Working B**

$$\begin{aligned} \frac{3x}{2} &= 8 + 5 \\ 3x &= 13 \times 2 \\ 3x &= 26 \\ x &= \frac{26}{3} \\ x &= 8\frac{2}{3} \end{aligned}$$

i) **Fill in:**

Working \_\_\_\_\_ is correct with  $x =$  \_\_\_\_\_.

ii) **Substitute** this value of  $x$  in the equation  $\frac{3x - 5}{2} = 8$  to check your answer.  
**Show all the necessary steps.**

b) Look at the equation  $2(3x + 1) = 17$ .

**Fill in** the given steps to solve the equation.

$$\begin{aligned} 6x + \underline{\hspace{2cm}} &= 17 \\ 6x &= 17 \underline{\hspace{2cm}} \\ 6x &= \underline{\hspace{2cm}} \\ x &= \underline{\hspace{2cm}} \\ x &= \underline{\hspace{2cm}} \end{aligned}$$

c) **Work out** the value of  $x$  for which  $\frac{x}{5} - 3 = 7$ .

$x =$  \_\_\_\_\_

(10 marks)

**END OF PAPER**