DEPARTMENT FOR CURRICULUM,
LIFELONG LEARNING AND EMPLOYABILITY
Directorate for Learning and Assessment Programmes
Educational Assessment Unit

Track 1

Annual Examinations for Secondary Schools 2022

YEAR 11 **MATHEMATICS** **TIME: 1h 40min**
Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Main	Non Calc	**Global Mark**
Mark																		

Name: _____ Class: _____

CALCULATORS ARE ALLOWED BUT ALL NECESSARY WORKING MUST BE SHOWN.
ANSWER ALL QUESTIONS.

1. (a) Factorise:
   (i) $7x - 21y$;

   Ans: _____

   (ii) $8a^2b - 11ac$.

   Ans: _____

   (b) Expand and simplify where possible:
   (i) $4(a + 6)$;

   Ans: _____

   (ii) $4(1 + 2x) - 3(x - 7)$.

   Ans: _____

   (7 marks)

2. (a) Change $\frac{3}{5}$ to a percentage.

Ans: _____%

(b) Find 35% of €260.

Ans: €_____

(4 marks)

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3. Use your calculator to work out:

(a) $7^5 + 3^4 - 2^5$;

Ans: _____

(b) $(5 + 4) \times 2 - \frac{3}{4}$;

Ans: _____

(c) $\sqrt{2.7^2 + 3.4^3}$.

Ans: _____

(7 marks)

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4. Find the value of:

(a) $a + b + c$ where $a = 4$, $b = 7$ and $c = -5$;

Ans: _____

(b) $2\left(x + \frac{y}{z}\right)$ when $x = 3$, $y = 1$ and $z = 4$.

Ans: _____

(4 marks)

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5. (a) Express 30 minutes as a percentage of 150 minutes.

Ans: _____%

(b) An umbrella costs €150. Its price is reduced by 15%. Find the selling price.

Ans: €_____

(c) Oliver has €1500 in his bank account. Last year he had €1200. What is the percentage increase?

Ans: _____%

(8 marks)

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6. Solve the equations:

(a) $x + 5 = 6x - 20$;

Ans: _____

(b) $\frac{x}{2} + 4x = 18.$

Ans: _____

(5 marks)

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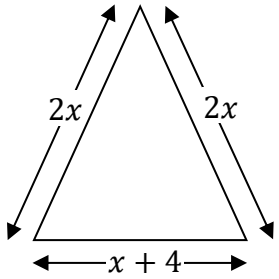
7. The equal sides of an isosceles triangle are $2x$ cm and the other side is $x + 4$ cm. The perimeter is 94 cm.



(a) Form an equation in terms of x.

Ans: _____

(b) Solve the equation found in part (a).

Ans: x = _____

(c) Calculate the length of one of the equal sides.

Ans: _____cm

(4 marks)

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8. (a) A table has a circular top of radius 40 cm.

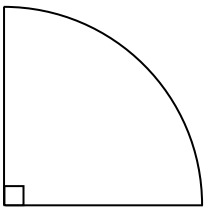
(i) Find the circumference of the top.

Ans: _____cm

(ii) Find the area of the top.

Ans: _____cm^2

(b) The diagram on the right is a sector of a circle of radius 40 cm.



(i) Find the length of the arc.

Ans: _____cm

(ii) Find the perimeter of the sector.

Ans: _____cm

(iii) Find the area of the sector.

Ans: _____cm^2

(10 marks)

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9. (a) Find the sum of the interior angles of a pentagon.

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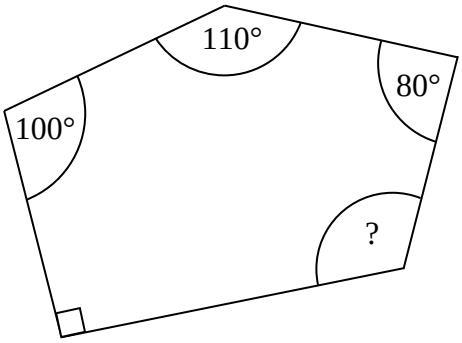
Ans: _____

(b) Four angles of this pentagon are 100°, 80°, 110° and 90°. Find the fifth angle.



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Ans: _____

(5 marks)

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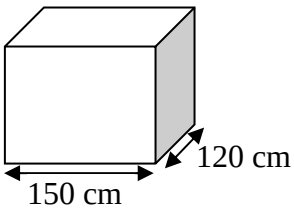
10. (a) The volume of a cuboid is 1 440 000 cm^3. The length and width are 150 cm and 120 cm respectively. Show that the height is 80 cm.



(b) Convert 2 630 cm to m.

Ans: _____ m

(5 marks)

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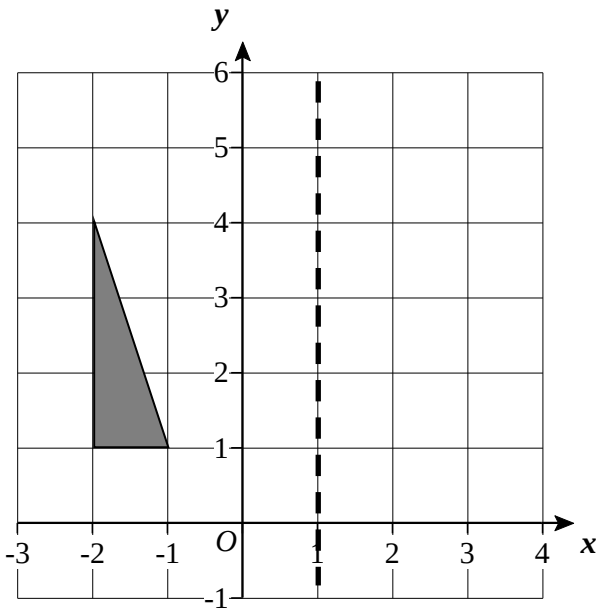
11. Reflect the triangle below in the line $x = 1$.



(2 marks)

12. Use ruler and compasses only to construct triangle PQR where PQ is 9 cm, QR is 5 cm and PR is 7 cm. Start from point P below.

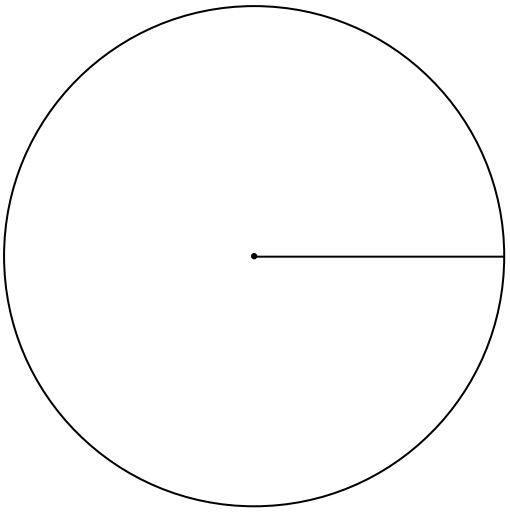
P

(3 marks)

13. A group of 100 students were asked what movie category they prefer to watch. The table below shows the information obtained.

Category	**Frequency**
Adventure	30
Action	40
Comedy	15
Drama	10
Horror	5

Use this information to complete the pie chart. Label the pie chart showing the categories. Show all your working.



(6 marks)

14. The following are the number of muffins sold daily at a shop.

10 13 7 4 7 6 11 6 11 8 9 7 6 6 9

Find (a) the mean number of trousers.

Ans: _____

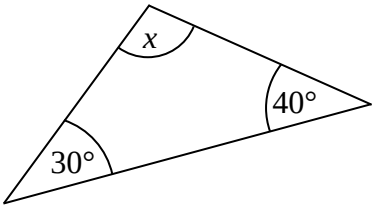
(b) the median number of trousers.

Ans: _____

(5 marks)

15. Find the values marked x and y in the following diagrams.

(a)



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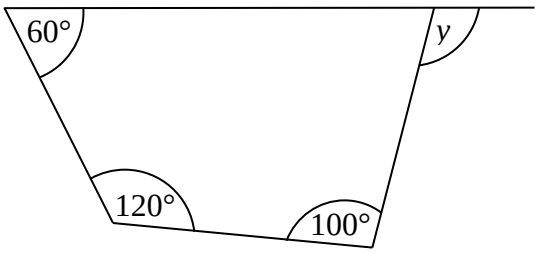
Ans: $x =$_____

(b)



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Ans: $y =$_____

(5 marks)

END OF EXAMINATION