

## Year 11 Finals 2024

Y11/1. Find the average of the first 100 odd integers.

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Y11/2. Evaluate  $\frac{2024^2 + 2024 \times 2025}{4049}$

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Y11/3 The cash price of a refrigerator was \$2000. Ryan bought the refrigerator on **hire purchase** by paying:

- \$400 deposit and
- \$100 per month for 2 years.

Determine the flat rate of interest charged per annum.

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Y11/4 In the magic square shown, the sum of each row, column and diagonal is the same..

Find the value of **P + Q**

14		<b>Q</b>
	<b>P</b>	9
8		12

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Y11/5 Towns A and B are 200 km apart. Ali is in town A and Ben is in town B. Ali drives towards town B at 60 km/ h. Leaving at the same time, Ben drives towards town A at 40km/h. How many kilometres from City B will they be when they meet?

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Y11/6. The average of  $n$  consecutive integers of which the smallest is  $n$  is 94. Find  $n$ .

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Y11/7. Find the sum of all positive integers less than 100 which do not contain the digit 7.

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Y11/8. In how many different ways can 7 books be arranged in a row if 3 specified books must be together?

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Y11/9. For what value(s) of  $x$  does the expression  $\frac{9}{1 - \frac{1}{x-3}}$  have no meaning?

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- . Y11/10. A chemist mixes one container of 7% solution of a chemical and another container of 3% solution to yield 10 litres of a 6% solution.?

How many litres of 7% solution is required?

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- Y11/11. Two vertical poles, 80 m and 20 m high, are 13 m apart on level ground. Straight wires are attached from the top of each pole to the bottom of the other pole. Find the vertical distance from the ground to the intersection of the wires in metres.

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- Y11/12. If  $x - 1$ ,  $x + 2$  and  $3x + 7$  are the first three terms of an arithmetic sequence in the order given, find the value of  $x$ .

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- Y11/13 Maria has taken four tests in her geometry class. If she gets an 80 on her next test, her mean score will decrease by 2. What is her current mean score?

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- Y11/14 A painter can paint a room in 4 hours while an apprentice can paint the same room in 5 hours. Calculate the time, in minutes, it would take 2 painters and 5 apprentices to paint the room if they work together.

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Y11/15 At Aman's hardware 3 hammers, 1 screwdriver and 1 spanner cost \$25; 1 hammer, 3 screwdrivers and 1 spanner cost \$20 while 1 hammer, 1 screwdriver, and 3 spanners cost \$17.50.

How much will 5 hammers, 5 screwdrivers and 5 spanners cost?

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Y11/16. How many litres of water must be evaporated from 20 litres of a 3% salt solution to make it 5% salt solution.

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Y11/ 17 How many integers satisfy  $|1 - 3x| < 20$

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Y11/18 At the school library, Dolly decides to select 2 books from a group of 7.

In how many different ways can Dolly make the selection?

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Y11/19. An aeroplane takes 4 hours and 15 minutes to fly from Island A to Island B. If it were to increase its speed by 25%, how long would the trip take? Give your answer in hours (h) and minutes (min).

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Y11/20 What is the area of the triangle whose vertices are given by the points  $(1, 2)$ ,  $(4, 6)$  and  $(5, 5)$ ?

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