

Year 10 Finals 2024

Y10/1. Calculate the average of the first 200 positive integers.

Y10/2. Working alone, a man can paint a room in 10 hours. Working with his son, they can paint the room in 6 hours. How long would it take the son to paint the room if he worked alone?

Y10/3. Evaluate $\frac{199^2 - 199}{100^2 - 99^2}$

Y10/4 A car 3m long is travelling at 80km/h and overtakes a 17m long truck travelling at 60km/h. How long , in seconds, does it take the car to overtake the truck?

Y10/5. Seven consecutive numbers are listed. The sum of the smallest three is 33.

What is the sum of the largest three?

Y10/6. Evaluate $\left(1 - \frac{1}{4}\right) \times \left(1 - \frac{1}{5}\right) \times \left(1 - \frac{1}{6}\right) \times \left(1 - \frac{1}{7}\right) \times \dots \times \left(1 - \frac{1}{100}\right)$

Y10/7. At a party, the ratio of girls to boys is 5 :4. Then, 18 boys join the party and the ratio of boys to girls is 5 : 4 . Calculate the number of people originally at the party.

Y10/8. 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.

Y10/9. In a Mathematics Competition each correctly answered question gains 6 marks while 1 mark is deducted for each incorrect answer. Dinesh answered 25 questions and received a total of 73 marks.

How many questions did Dinesh get wrong?

Y10/10. What is the size of the obtuse angle between the hour and minute hands of a clock at 12:24?

Y10/11. Among the 200 students at a school, 100 play rugby, 50 play soccer and 60 play neither of the two sports. How many students play both sports?

Y10/12. Diana leaves home at noon, travelling West at 40 km/h. At 1.00 pm her husband leaves, taking the same route at 65 km/h. At what time will she overtake her?

Y10/13. Find the smallest integer in the solution set of $\frac{5-2x}{3} < -9$.

Y10/14. A train is 250 m long. It is travelling at a constant speed of 64 km/h. How long, in minutes, will it take to pass completely through a $7\frac{3}{4}$ km tunnel?

Y10/15. In the magic square shown, each of the rows, columns and diagonals adds to 15.

What is the sum of the corner numbers?

	5	
	1	

Y10/16. At a Haroon's hardware 3 hammers and 2 screwdrivers cost \$122 while 4 hammers and 3 screwdrivers cost \$168.

How much does 7 hammers and 5 screwdrivers cost?

Y10/17. A bag contains 100 balls and 95% are red. Some of the red balls are removed from the bag and after this 80 % of the balls in the bag are red.

How many red balls were removed from the bag?

Y0/18. An aeroplane takes 2 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).

Y10/19. Towns A and B are 250 km apart. Ali is in town A and Ben is in town B. Ali drives towards town B at 45 km/ h. Leaving at the same time, Ben drives towards town A at 55km/h. How many kilometres from town B will they be when they meet?

Y10/20. In how many different ways can 6 books be arranged in a row if 3 specified books must be together?
