

**Year 9 Zonal 2024**

1. In a group of 48 children, the ratio of boys to girls is 3 : 5.

What is the new ratio, in simplified form, of boys to girls if 2 boys and 5 girls join the group?

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2. Evaluate  $1 + 2 + 3 + 4 + \dots + 199 + 200$

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3. School shirts are on sale for 40% off the usual price. Jiten buys a bag on sale for \$120.00.

What was the original price of the bag?

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4. If it takes 8 painters 15 days to paint a building, how long ( in days) will it take 12 painters?

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5. In numbering the pages of a book 999 digits are used. Calculate the number of pages in the book.

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6. How many handshakes are there when 15 people shake hands with each other?

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7. The sum of a set of 5 consecutive integers is 410. Find the smallest integer in the set.

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8. The **cash price** of a refrigerator is \$4000. To buy this refrigerator on hire purchase, a \$0 deposit is required, then monthly payments of \$200 each for 2 years.

How much more than the cash price will be paid if the refrigerator is bought on **hire purchase**?

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9. Pene has to divide \$70 amongst his three children: George, Anselom and Francis. George will have twice as much as Francis, and Anselom will have \$10 less than Francis.

How much will Francis get?

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10. Ben can do a job working alone in 6 hours. Den can do the same job alone in 3 hours. If they both work together, in how many hours will the job be done?

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11. A tank is  $\frac{1}{5}$  full of kerosene. If 9 litres of kerosene is added then the tank is  $\frac{1}{4}$  full.

What is the capacity of the tank in litres?

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12. Tara's bicycle tire has a circumference of 1.6 m. If Tara travels 2 km on her bike, how many full rotations will the tire make?

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13. A  $4\text{ cm} \times 4\text{ cm} \times 4\text{ cm}$  cube is painted and is then cut into small cubes of volume  $1\text{ cm}^3$ .

How many small cubes have 2 painted faces?

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14. Three faces of a rectangular solid have areas 12, 15 and 20. Calculate the volume of the solid.

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15. The average mark in the first 2 tests Aryan took was 90. What average mark does he need on the next 4 tests to have an average of 80 in all the tests?

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16. Consider:  $a = cd + b$

Find the value of  $d$  if  $a = 50$ ,  $b = -5$  and  $c = 0.5$

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17. In how many ways can 3 students line up at the school canteen?

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18. My two maternal grandparents decided to take their 3 grandchildren by bus to town. On the bus each child is charged  $\frac{1}{5}$  of the adult fare and my grandfather paid the driver a total of \$9.75 for himself, my grandmother and the 3 children. What was the adult fare?

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19. Next year my uncle's age will be twice mine and 11 years ago his age was 5 times what mine was then. How old is my uncle now?

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20. Tomasi travelled 32 km from his home to a town at an average speed of 60 km/h. He arrived at the town at 9.08am. At what time did he leave home? Mention am or pm in your answer.

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