

Year 10 Zonal 2024

1. Evaluate $1 + 2 + 3 + 4 + \dots + 299 + 300$

2. A ship sails 34 km north, followed by 28 km east, then 28 km south, and finally 36 km west.

Find the distance, in km, between the ship and its starting point.

3. If it takes 6 painters 15 days to paint a building, how long (in days) will it take 10 painters?

4. 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?

5. A shopkeeper made 25% profit on a radio that he sold for \$100.

Find the shopkeeper's cost price?

6. School shirts are on sale for 40% off the usual price. Jiten buys a bag on sale for \$120. What was the original price of the bag?

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

8. How many handshakes are there when 29 people shake hands with each other?

9. The sum of a set of 5 consecutive integers is 360. Find the largest integer in the set.

10. The **cash price** of a refrigerator is \$3800. To buy this refrigerator on hire purchase, a \$600 deposit is required and then monthly payments over 2 years. The interest rate is 10%.

Find the size of monthly payments?

11. Peter 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?

12. A line passes through the points (2, 0) and (0, 4). Write the equation of the line in the form $y=mx+c$.

13. Solve $10 - \frac{x}{4} \geq 18$

14. Consider: $a = cd^2 + b$

Find the value of d if $a = 3$, $b = -5$ and $c = 0.5$

15. Mr Smith invested \$980 at 10% compound interest per annum. After 2 years he received an interest of \$ k . Find the value of k .

16. Karan works a 35-hour week and is paid at an hourly rate of \$18. He gets overtime for hours worked beyond 35 hours at the hourly rate of \$27. In a particular week, he earned \$1008. How many hours in total did Karan work in this week to earn this amount?

17. Ben can do a job working alone in 4 hours. Den can do the same job alone in 2 hours. If they both work together, in how many minutes will the job be done?

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

19. A $10\text{ cm} \times 10\text{ cm} \times 10\text{ cm}$ cube is painted and is then cut into cubes with volume 1 cm^3 . Calculate the number of cubes with 2 painted faces.

20. In how many ways can 4 students line up at the school canteen?
