

Year 10 Finals 2023

1. Solve $(x \div 12) \div (15 \div x) = 20$

2. What is the difference between 50% of 60% of 70 and 40% of 50% of 80 ?

3. If a boat travels due North for 5 miles, then due East for 12 miles, how far is the boat from its starting point?

4. Solve $(2x + 4)(x - 6) = 0$

5. Factorise $x^2 - 14x + 49$

6. In a shop, 10% discount is offered on all marked prices. Manoa **saves** \$20 on a pair of jeans.
How much does he pay for the jeans?

7. If there are six different pairs of socks in the drawer, what is the smallest number you could reach in and grab (without looking) to guarantee you have a matching pair?

8. Evaluate $-5x^0 + 4^0 + 3m^0$

9. One day, Kritesh painted his house at a constant rate. By 1.10 pm he had painted $\frac{2}{3}$ of the house. By 1.40 pm he had painted $\frac{3}{4}$ of the house. When did Kritesh start painting the house?

10. The **cash price** of a refrigerator is \$1000. To buy this refrigerator on hire purchase, a 10% deposit is required, then 12 monthly payments of \$100.

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

11. The length of a rectangular garden exceeds its width by 3 m. If the perimeter of the rectangle is 46 m, what is the length, in metres?

12. Evaluate $1 - 2 + 3 - 4 + \cdots - 98 + 99$

13. A certain tax system charges 12% on the first \$10,000 of your salary, 15% on the next \$40,000 of your salary, and 20% on any portion of your salary which exceeds \$50,000. How much are the taxes on a salary of \$70,000?

14. A line passes through the points $(-1, 0)$ and $(0, 3)$. Write the equation of line p in the form $y = mx + c$.

15. Nathan is 5 years younger than his sister, Ela. Their combined age is 31 years. What is Ela's age?

16. Factorise completely $3x^2 - 12$

17. Find the compound interest earned on \$5000 invested at 6% per annum for 2 years with interest compounded annually.

18. Solve $(x-2)^2 - 20 = 5$

19. A tiler charged \$750 to tile a rectangular kitchen floor. How much should be charged (at the same rate) to tile another twice as long and twice as wide?

20. In a group of 48 children, the ratio of boys to girls is 3 : 5. How many boys must join the group to make the ratio of boys to girls 5 : 3?
