

- What is the value of $1 + 4$ in modulo 5?
A. 0 B. 1 C. 4 D. 5
- The value of $\sum_{n=2}^4 (n+1)$ is
A. 9 B. 12 C. 14 D. 15
- At a sale, 10% discount is offered on all marked prices. Maya bought a dress at this sale for \$45. How much did she save?
A. \$5 B. \$15 C. \$25 D. \$50
- If a set is a group under an operation *, then the operation *
A. is commutative B. is associative C. has no identity elements D. has 2 identity elements
- Lal's normally works 8 hours a day. He is paid \$10 per hour. All overtime is at time-and-a-half. How much does he earn if he works 10 hours in one day?
A. \$80 B. \$90 C. \$100 D. \$110
- The inverse of 2 under multiplication is
A. -2 B. 1 C. 0.5 D. 0.25
- If 2, p, 8, forms a geometric sequence, then p =
A. 4 only B. -4 only C. ±4 D. ±8
- If there are 20 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?
A. 10 B. 19 C. 20 D. 21
- An open box is made from a square piece of cardboard with sides 12 cm by cutting a square of sides x cm from each corner and bending up the sides. The volume of the open box is
A. $x(12-2x)^2$ B. $x(12+2x)^2$ C. $x(12-x)^2$ D. $x(12+x)^2$
- Jan deposits \$1000 in an account that pays 24 % p.a. compound interest paid quarterly. How much money will Jackie have in her account after 3 months?
A. \$1750 B. \$1150 C. \$1100 D. \$1060

11. How many square metres are in 15000 square centimetres?
- A. 0.15 B. 1.5 C. 15 D. 150
12. Which of the following is the factorised form of $2p^2 - 32$?
- A. $(2p - 32)(2p + 32)$ B. $2p(p - 16)$ C. $2(p - 4)(p + 4)$ D. $2(p - 16)(p + 16)$
13. A farmer wishes to enclose a rectangular field of length x metres and width y metres using 108 m of fencing material. The area of the field in terms of x is
- A. $x(54 - x)$ B. $x(x - 54)$ C. $x(108 + x)$ D. $x(108 - x)$
14. A semi-circle has diameter x cm. Its area in cm^2 is
- A. $\frac{\pi x^2}{2}$ B. $\frac{\pi x^2}{8}$ C. $\frac{x^2}{8\pi}$ D. $\frac{x^2}{4}$
15. Which expression correctly shows p as the subject of $pq = px^2 - 7$?
- A. $p = \frac{px^2 - 7}{q}$ B. $p = \frac{-7}{q + x^2}$ C. $p = \frac{-7}{q - x^2}$ D. $p = \frac{7}{q + x^2}$
16. The range of the relation $y = -(x - 2)^2 + 1$ is
- A. $y \geq 1$ B. $y \leq 1$ C. $y \leq -1$ D. Real numbers
17. The graph of $y = (x + 5)^2 - 2$ is symmetrical about the line
- A. $x = 0$ B. $x = -5$ C. $x = -2$ D. $x = 5$
18. What is the general condition that best ensures that the sum to infinity exists for the sequence $\langle a, ax, ax^2, ax^3, \dots \rangle$?
- A. $-1 < x < 1$ B. $-1 < a < 1$ C. $-1 \leq x \leq 1$ D. $-1 \leq a \leq 1$
19. A ball is dropped from a height of 5 m. With each bounce it rises to 60% of its previous height. The total distance travelled by the ball before it comes to rest is
- A. 15 m B. 20 m C. 25 m D. 30m
20. When simplified $\frac{(x+2)(x-5)}{x^2+2x-35}$ equals
- A. $\frac{x+2}{x+7}$ B. $\frac{x-2}{x+7}$ C. $\frac{x+2}{x-7}$ D. $\frac{x+3}{x+5}$

21. The value of $2^{2025} + 2^{2025}$ is
- A. 2^{2025} B. 2^{4050} C. 4^{1013} D. 4^{4050}
22. Ten friends are exchanging gifts for Christmas. If each friend gives one gift to everyone else, how many gifts were exchanged in total?
- A. 10 B. 45 C. 90 D. 100
23. How many multiples of 3 are between 2 and 1000?
- A. 333 B. 334 C. 335 D. 336
24. The turning point of $y = (x + 3)(x + 2)^2$ which lies on the x -axis is at
- A. (2, 0) B. (-2, 0) C. (-3, 0) D. (3, 0)
25. Which expression correctly shows l as the subject of $T = 2\pi \sqrt{\frac{l}{g}}$?
- A. $l = \left(\frac{T}{2\pi}\right)^2 g$ B. $l = \left(\frac{T}{2\pi g}\right)^2$ C. $l = \frac{Tg}{2\pi}$ D. $l = \frac{T^2 g}{2\pi}$
26. The sum of the first 100 positive odd numbers is
- A. 100 B. 1000 C. 10 000 D. 100 000
27. Rohit is riding his bicycle at 12 km/h. The number of metres he travels each minute is
- A. 20 B. 200 C. 400 D. 12000
28. An aeroplane takes 75 minutes to fly from Island A to Island B. If it were to increase its speed by 25%, how long would the trip take?
- A. 15 min B. 60 min C. 65 min D. 70 min
29. The price of a radio is \$90, which includes 12.5% VAT. What is the amount of VAT included in this price?
- A. \$10 B. \$12,50 C. \$25 D. \$80
30. $9^n \times 3^n =$
- A. 27^n B. 27^{2n} C. 3^{2n} D. 27^{n^2}