

1. When a natural number  $K$  is divided by its reciprocal, the answer is  
A. 1      B.  $2K$       C.  $\sqrt{K}$       ☒ D.  $K^2$
2. Three men can complete a job in 6 days. How many days will it take two men to complete the same job if they work at the same rate?  
A. 4      ☒ B. 9      C. 12      D. 18
3. Rajen bought a laptop on terms where he paid a \$200 deposit and made monthly repayments of \$100 for 3 years. How much did he pay for the laptop?  
A. \$500      B. \$3400      C. \$3600      ☒ D. \$3800
4.  $2x - 3 - (3 - 2x)$  equals  
A. 0      B.  $4x$       C. 6      ☒ D.  $4x - 6$
5. The capacity in litres of a storage capacity tank with volume  $4.7 \text{ m}^3$  is  
A. 47      B. 470      ☒ C. 4700      D. 47000
6. If  $a < -1$  and  $0 < b < 1$ , which of the following numbers is the smallest?  
A.  $-a^{-1}$       B.  $-a$       C.  $-b$       ☒ D.  $-b^{-1}$
7. The gradient of a line passing through the points  $(0, 1)$  and  $(-\frac{1}{2}, 0)$  is  
A. -2      B. -1      C. 1      ☒ D. 2
8. The value of  $1 - 2 + 3 - 4 + 5 - 6 + \dots + 99 - 100$  is  
☒ A. -50      B. -51      C. -99      D. -100
9. What percentage of  $x$  is  $y$ ?  
A.  $\frac{100x}{y}$       ☒ B.  $\frac{100y}{x}$       C.  $\frac{100y}{x+y}$       D.  $\frac{x}{y}$
10. How many times are the hands of a clock perpendicular in a day?  
A. 42      ☒ B. 44      C. 46      D. 48

11. In 200 m race, Anna covers the distance in 72 seconds and Bina in 90 seconds. In this race Anna beats Bina by:

☒ A 40 m

B 45 m

C 50m

D 55 m

12. The letters D, E and F are used to make a three-letter company name. Each letter is used only once. How many different company names can be made?

A. 3

☒ B. 6

C. 9

D. 27

13. At a party, every attendee shakes hands with every other attendee once. If 10 people are at the party, how many handshakes take place?

☒ A 45

B 50

C 55

D 90

14. If the cost of 1 bottle of juice and 2 packets of biscuits is \$10, what is the cost of 3 bottles of juice and 6 packets of biscuits?

A. \$20

B. \$22

C. \$28

☒ D. \$30

15. A billion is represented by a 1 followed by

A. 3 zeros

B. 6 zeros

☒ C. 9 zeros

D. 12 zeros

16. Four times a number,  $x$ , is subtracted from 12. The result is 9. The correct mathematical equation for the above is given by

A.  $4x - 12 = 9$

☒ B.  $12 - 4x = 9$

C.  $4(x - 12) = 9$

D.  $9 - 4x = 12$

17. A 8 cm x 8 cm x 8 cm wooden cube is painted and is then cut into 1 cm x 1 cm x 1 cm smaller cubes. How many small cubes are unpainted?

A. 125

B. 216

☒ C. 343

D. 512

18. When factorised  $1 - 4m^2$  is equal to

☒ A.  $(1 + 2m)(1 - 2m)$

B.  $(1 + 4m)(1 - 4m)$

C.  $4(1 - m)$

D.  $m^2(m - 1)$

19. If it takes Raj 15 minutes to cut a board into four pieces, how long would it take him to cut the same type board into 12 pieces?

A. 40 minutes

B. 45 minutes

C. 50 minutes

☒ D. 55 minutes

20. A pine tree is 2.3 m tall. It grows at a rate of 1.4 m per year. How long will it take the tree to grow to a height of 6.5 m?

- A. 1 year      B. 2 years      ☒ C. 3 years      D. 4.6 years

21. What is the equation of the axis of symmetry of the function  $y = x^2$ ?

- A.  $x = 0$       ☒ B.  $y = 0$       C.  $y = x$       D.  $y = 2$

22. A point with the coordinates  $(1, k)$  lies on the line  $y = x + 4$ . The value of  $k$  is

- A. 1      B. 4      ☒ C. 5      D. 9

23. The angle bisectors of a triangle meet at the

- A. centroid      ☒ B. incentre      C. orthocentre      D. circumcentre

24. The line which joins a vertex of a triangle to the midpoint of the opposite side is called

- ☒ A. median      B. altitude      C. mediator      D. bisector

25. The price of a radio is \$230, which includes 15% VAT. What is the amount of VAT included in this price?

- A. \$15      ☒ B. \$30      C. \$34.50      D. \$200

26. The time on a digital clock is 5:55. How many minutes will pass before the clock next shows a time with all digits identical?

- A. 71      B. 72      C. 255      ☒ D. 316

27. The gradient of the line  $2x - y = 8$  is

- A. -2      B. -1      ☒ C. 2      D. 8

28. What is the length of the diagonal of a rectangle with dimensions 3 m by 4 m?

- ☒ A. 5      B. 3      C. 2      D. 1

29. If  $x^2 - 25 = 0$  then

- A.  $x = 5$  only      B.  $x = -5$  only      ☒ C.  $x = \pm 5$       D.  $x = \pm 25$

30. When factorised  $x^2 - 10x + 25$  is equal to

- ☒ A.  $(x - 5)^2$       B.  $(x - 10)^2$       C.  $(x + 5)^2$       D.  $(x + 10)^2$