

Pabna Cadet College
Term End Examination - 2020
Subject: Mathematics
Class: VII

Time: 20 minutes

Full Marks: 20

Answer all the questions

1. In which way can the square root of a be expressed?
i. $a \times a$ ii. $\sqrt[3]{a}$ iii. a^2 iv. $a^{\frac{1}{2}}$
2. Which one is a rational number?
i. 1.666... ii. $\sqrt{3}$ iii. $\sqrt{7}$ iv. 2.343
3. 16:A::A:64. A = ?
i. 32 ii. 24 iii. 27 iv. 42
4. A book is bought at 40 tk. and sold at 50 tk. What is the percentage of profit?
i. 20 ii. 25 iii. 22 iv. 15
5. Speed of a boat against current is y km/hour. If the speed of the boat is x km/hour in still water, what is the speed of current (in km/hour)?
i. $y - x$ ii. x iii. $x + y$ iv. $x - y$
6. 100 sq. decimeter = how many sq.meters?
i. 0.01 ii. 1 iii. 0.10 iv. 10
7. Area and length of a triangle are 5 sq. units and 4 units, respectively. What is the height of the triangle?
i. 2.5 ii. 5 iii. 2 iv. 3
8. A car burns 10 liters of diesel to run 80 km. How much diesel does it require to run 1 km?
i. 28 ii. 80 iii. 125 iv. 150
9. $a^2 + b^2 = ?$
i. $(a + b)^2 - 2ab$ ii. $a^2 - 2ab + b^2$ iii. $a^2 + 2ab + b^2$ iv. $(a - b)^2 - 2ab$
10. If $a^2 + \frac{1}{a^2} = 3$, what is the value of $(a - \frac{1}{a})^2$?
i. 0 ii. 1 iii. 2 iv. 3
11. $(a - \frac{1}{2}b)(a - \frac{1}{3}b) = ?$
i. $\frac{1}{6}(6a^2 + 5ab + b^2)$ ii. $\frac{1}{6}(6a^2 - 5ab - b^2)$ iii. $\frac{1}{6}(6a^2 - 5ab + b^2)$ iv. $\frac{1}{6}(a^2 - 5ab + b^2)$
12. $a^2 - 36$ and $a^2 + a - 30$ are two expressions. Which of the following is their common factor?
i. $m + 6$ ii. $m - 6$ iii. $m + 5$ iv. $m - 5$
13. HCF of xyz, 7x, and 4xp is —
i. xp ii. x iii. 28xyzp iv. xyz
14. $x^2 - 4 = 0$ is an equation.
a. There is only one variable in the equation.
b. The equation has more than one root.

c. The equation has a negative root.

Which of the above are correct?

i. a & b ii. b & c iii. a & c iv. a, b, & c

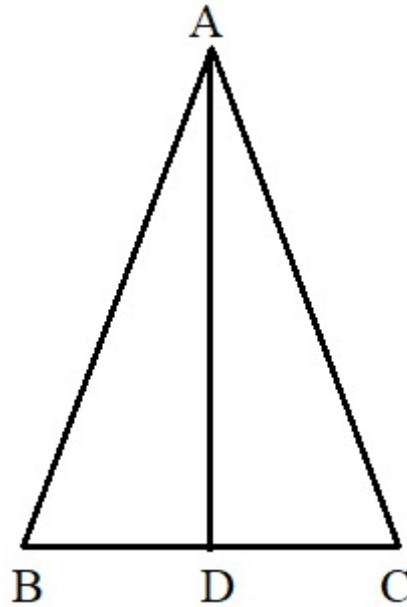
15. What is the number, if 20 subtracted from it, the difference would be -15?

i. 10 ii. 5 iii. 20 iv. -5

16. If a line intersects two lines, how many pairs of corresponding angles can be made?

i. 5 ii. 4 iii. 2 iv. 3

17. In the figure, AD is the bisector of $\angle ABC$, $AB = AC$



$\angle ABD = ?$

i. $\angle ADB$ ii. $\angle ADC$ iii. $\angle BAD$ iv. $\angle ACB$

18. If sides of two similar triangles are equal to each other, the triangles are -

i. similar ii. congruent iii. symmetrical iv. asymmetrical

Answer the question 19 - 20 as per the following data

Marks of some students are given below.

Interval	11-15	16-20	21-25	26-30	31-35
Frequency	5	6	3	4	5

19. What is the interval of each class?

i. 4 ii. 5 iii. 6 iv. not equal for all classes

20. What is the percentage of students getting marks above 25?

i. 39% ii. 22% iii. 40% iv. Cannot be determined from the given data

Answers

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer	iv	iv	i	ii	iv	ii	i	iii	i	i	iii	i	ii	iv	ii	ii	iv	ii	ii	i

Creative Questions

Three friends Saleh, Tahmid, and Rasel collect 10710 tk. for a program. Rasel gives half of Saleh's amount, while Tahmid gives $\frac{5}{3}$ part of Rasel.

- Determine the simple ratio of their amount.
- How many tk. did Rasel and Tahmid contribute?
- If 10,010 tk. is spent for the program, how much amount would each of them get back?

Solution

- Ratio: $Saleh : Tahmid : Rasel = 1 : \frac{5}{6} : \frac{1}{2}$

Simple Ratio: 3 : 5 : 6 (multiplying by 6)

- $3 + 5 + 6 = 14$

Rasel's amount = 2295

Tahmid's amount = 3825

Saleh's amount = 4590

- Remaining amount = 700

Rasel would get back = 150

Tahmid would get back = 250

Saleh would get back = 300

—Good Luck—