

# PRACTICE SET 1

A Whole Content Based Test for Class 10th Mathematics Asiad

1. The decimal expansion of the rational number  $\frac{14587}{1250}$  will terminate after

A one decimal place  
 B two decimal places  
 C three decimal places  
 D four decimal places

2. ` 3000 were divided among 100 children. If each girl gets ` 50 and each boy gets ` 25, then the number of boys is

A 20      B 40      C 60      D 80

3. If four numbers are to be inserted between the numbers 4 and 49 such that an AP is formed, then the biggest of these four numbers is

A 30      B 35      C 40      D 45

4. Lara baked 30 oatmeal cookies and 42 chocolate chip cookies to package in plastic containers for her teacher friends at school. She wants to divide the cookies into identical containers, so that each container has the same number of each kind of cookie. If she wants each container to have the greatest number of cookies possible, how many plastic containers does she needs?

A 12      B 7      C 5      D 13

5. The expression equivalent to  $\sqrt{\frac{1 + \sin q}{1 - \sin q}}$

A  $\tan q + \operatorname{cosec} q$       B  $\tan q + \sec q$   
 C  $\cot q + \operatorname{cosec} q$       D  $\cot q + \sec q$

6. Tyres from two different automobiles are shown below:



How many revolutions does each tyre makes while travelling 200 ft? ( TAKE  $\pi = 22 / 7$  )

A A-32, B-30      B A-42, B-30  
 C A-32, B-40      D A-42, B-40

7. If two circles are such that the centre of one lies on the circumference of the other having equal radius, then the ratio of the common chord of the two circles to the diameter of one of the circles is

A 2 : 1      B  $\sqrt{3} : 2$   
 C  $\sqrt{5} : 2$       D  $2\sqrt{3} : 1$

8. The average, median and mode are calculated for the list 4, 4, 8, 11, 13. If the number 2 is added to the list, then which of the following will not change?

A The average      B The median  
 C The mode      D None of these

9. On dividing  $x^3 + 3x^2 + \frac{x}{p} + 1$  by  $(x + p)$ , then we get remainder

A  $-p^3 + 3p^2 + p + 1$       B  $-p^3 + 3p^2$   
 C  $-p^3 + 3p^2 - 2$       D  $-p^3 + 3p^2 - p + 1$

10. If the equation  $(p^2 + r^2)x^2 - 2r(p+q)x + r^2 + q^2 = 0$  has equal roots, then

A  $2r = p + q$       B  $r^2 = pq$   
 C  $r = \frac{2pq}{p+q}$       D  $r = pq$

11. If the points A(2, k), B(5, 6) and C(6, 7) are collinear, then the value of k is

A 3      B 4  
 C 3/2      D 2

12. A single letter is selected at random from the word 'CHAMPION'. The probability that it is a vowel is

A 1/4      B 3/8  
 C 1/2      D 3/4

13. The value of  $\sqrt{\frac{4 + 2\sqrt{3}}{7 + 4\sqrt{3}}}$  is

A  $\sqrt{1 - \sqrt{3}}$       B  $\sqrt{\sqrt{3}}$   
 C  $\sqrt{2 + \sqrt{3}}$       D None of these

14. If  $a$  and  $b$  are zeroes of the polynomial  $3x^2 + 13x + 4$ , then  $\frac{a}{b} + \frac{b}{a}$  is equal to

A  $\frac{169}{12}$     B  $\frac{145}{12}$     C  $\frac{144}{12}$     D  $\frac{167}{12}$

15. Two dice  $P$  and  $Q$  have their respective faces marked as

<b>P</b>	2	2	4	4	9	9
<b>Q</b>	1	1	6	6	8	8

The probability that die  $P$  rolls a higher number than  $Q$  is

A  $4/9$     B  $1/3$     C  $2/3$     D  $5/9$

16. Due to increase in price of a commodity by 45, Mr. Rakesh could now buy 15 kg less for 300, then find the new quantity of the commodity bought.

A 5 kg    B 10 kg    C 15 kg    D 20 kg

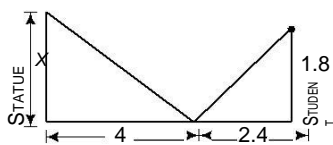
17. A manufacturer of AC produced 620 sets in fourth year and 720 sets in the ninth year. If the production increase uniformly by a fixed number every year, then the total production in first 10 yrs is

A 6200    B 6400    C 6500    D 6600

18. Which of the following geometrical figures is formed by the coordinates of the points  $A(5, 6)$ ,  $B(1, 5)$ ,  $C(2, 1)$  and  $D(6, 2)$ ?

A Rhombus    B Parallelogram  
C Square    D Rectangle

19. A statue of a freedom fighter is located in a museum. A student looks into a mirror and see the top of the statue reflected there. Using the information given below, determine the unknown height of the statue.



A 2 m    B 3 m    C 4 m    D 5 m

20. Choose the correctly matched options.

I.	$\sin(A - B)$	$\rightarrow$	$\sin A \cos B - \cos A \sin B$
II.	$\tan(A - B)$	$\rightarrow$	$\frac{\tan A - \tan B}{1 + \tan A \tan B}$
III.	$\cos(A + B)$	$\rightarrow$	$\cos A \cos B - \sin A \sin B$

CODES

A	B	C	A	B	C
A	iii	ii	i	B	ii
C	ii	iii	i	D	i
					ii
					iii

21. Anmol is covering a circular pool with a heavy duty cover for the winter. The pool has a diameter of 24 ft. If the cover extends 24 inch beyond the edge of the pool and a rope runs along the edge of the cover to secure the cover place. Then, the length of the rope required is

A 44 ft    B 88 ft  
C 80 ft    D 99 ft

22. The solution of the given system of equations is

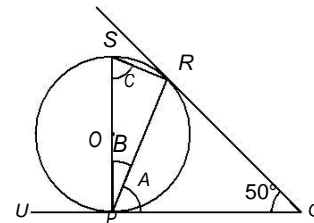
$$3(ax - by) + (a + 6b) = 0$$

$$3(bx + ay) + (b - 6a) = 0$$

A  $x = 2, y = \frac{1}{3}$     B  $x = -2, y = \frac{-1}{3}$

C  $x = \frac{-1}{3}, y = 2$     D  $x = \frac{-1}{3}, y = -2$

23. In the given figure, find the values of  $a$ ,  $b$  and  $c$ .



A  $40^\circ, 25^\circ, 65^\circ$   
B  $25^\circ, 65^\circ, 25^\circ$   
C  $25^\circ, 65^\circ, 65^\circ$   
D  $65^\circ, 25^\circ, 65^\circ$

24. A company has 140 employees of whom 30 are supervisors. Seventy of the employees are married and 20% of the married employees are supervisors. If an employee of the company is randomly selected, then what is the probability that the employee is married and a supervisor?

A 0.4    B 0.3  
C 0.2    D 0.1

25. The area left after cutting out the largest circle that can be inscribed in a square of length  $2a$  units, is

A  $(4p + a^2)$  sq units    B  $(4p - a^2)$  sq units  
C  $a^2(4 - p)$  sq units    D  $a^2(2 - p)$  sq units

26. A regular polygon is inscribed in a circle. If each side subtends an angle of  $36^\circ$  at the centre, then the number of sides in the polygon are

A 10    B 12

C 11

D 14

27. In the given expression  $(pr + q)^{(p-q)}$ ,  $p$ ,  $q$  and  $r$  can be any positive integer greater than 1 and less than 5. What is largest possible value of the expression?  
 A 64                                      B 256  
 C 324                                      D Can't be determined

28. Solve the following and choose the correct option.

$$\frac{1}{2(3x+2y)} + \frac{12}{5(2x-3y)10} = \frac{34}{10}$$

and  $\frac{5}{6(3x+2y)} + \frac{25}{12(2x-3y)} = \frac{15}{4}$

- A  $x = \frac{7}{26}, y = \frac{-2}{13}$                       B  $x = \frac{5}{26}, y = \frac{-2}{13}$   
 C  $x = \frac{7}{26}, y = \frac{-1}{13}$                       D  $x = \frac{5}{26}, y = \frac{-1}{13}$

29. A demand equation gives the relationship between the price  $p$  of a good and the quantity  $q$  that a consumer is willing to purchase in a fixed period of time. The law of demand says that as the price increases, the quantity demanded by the consumer falls and *vice-versa*. A supply equation gives the relationship between the price  $p$  of a good and the quantity  $q$  that a manufacturer is willing to produce. The law of supply says that as the price rises, the quantity the producer is willing to supply rises

and *vice-versa*. If the demand equation for a commodity is  $p(q + 4) = 400$  and the supply equation is  $2p - q = 38$ . Then, find the price of commodity at market equilibrium.

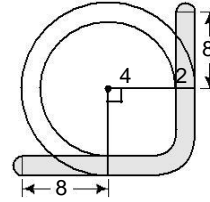
- A 30                                      B 50  
 C 20                                      D 25

30. Two ships move towards a light house with angle of elevation from the top of the light house be  $a$  and  $b$  (WHERE,  $a > b$ ) respectively and at a distance  $a$  and  $b$  from the light house. Then, the distance between the ships is

- A  $\frac{h(\cos b \sin a - \sin b \cos a)}{\sin b \sin a}$   
 B  $\frac{h(\sin b \cos a - \cos b \sin a)}{\sin b \sin a}$   
 C  $\frac{h(\sin b \cos a - \cos b \sin a)}{\cos a \cos b}$

D  $\frac{h(\sin a \cos b - \sin b \cos a)}{\cos a \cos b}$

31. The area of the boomerang or shaded portion (in sq units) in the following figure is



- A  $6p + 32$     B  $3p + 32$     C  $6p + 42$     D  $3p + 42$

32. A dentist records the number of cavities in 100 children from a school. The information obtained is summarised in the following table:

NUMBER OF CAVITIES ( $X_j$ )	$f_j$	$N_j$
0	25	0.25
1	20	0.20
2	$x$	$z$
3	15	0.15
4	$y$	0.05

The value of  $x$  is

- A 34                      B 35                      C 36                      D 38

33. There are three sets of key rings  $A$ ,  $B$  and  $C$ , for a house. The first set has five keys, the second has seven and the third has eight, of which only one key in each set opens the door to the storeroom. A key chain is chosen at random followed by a key from the set. What is the probability that the chosen key chain is from third set and the key doesn't open the door?

- A  $\frac{5}{24}$                       B  $\frac{6}{24}$                       C  $\frac{7}{24}$                       D  $\frac{8}{24}$

34. Simplify

$$\frac{8x^3 - y^3 + z^3 + 6xy}{a^3 - 8b^3 + 27c^3 + 18abc} \cdot \frac{4x^2 + y^2 + z^2 + 2xy + yz - 2xz}{a^2 + 4b^2 + 9c^2 + 2ab + 6bc - 3ac}$$

- A  $\frac{2x + y + z}{a + b + c}$                       B 1  
 C 0                                      D  $\frac{2x - y + z}{a - 2b + 3c}$

35. Miss Teghan begins a saving scheme and this she does in an AP. She finds out that after making 20 savings, she had ₹ 1050000 in her account and after 40 savings, she



had accumulated ` 4100000. Then,  
Miss Teghan's initial savings is

A ` 5000 B ` 10000 C ` 15000 D ` 20000

