

# CLASS XII

## GUESS PAPER

### MATHS

---

1. This paper contains three sections A,B and C.
2. Sections A and B contain 20 questions each of 1 mark each. A candidate has to answer any 16 questions in each section.
3. Section C contains 10 questions based on two case studies of which any four question in each case study should be answered.
4. There is no negative marking.

### Section-A

1. If the prime factorization of 16200 is  $2^p \times 3^q \times 5^2$ , then (p,q) is \_\_\_\_  
a) (4,3)      b) (3,4)      c) (2,4)      d) (5,2)
2. The smallest number that leaves remainders 8 and 12 respectively when divided by 28 and 32 is \_\_\_\_  
a) 224      b) 204      c) 216      d) 192
3. If  $-2/3$  and  $4/3$  are zeroes of polynomial  $27x^3 + 3px^2 + qx + 40$  then (p,q) is \_\_\_\_  
a) (21,6)      b) (6,21)      c) (-21,6)      d) (-21, -6)
4. If  $a = p^3q^3r$  and  $b = p^2qr^2$ , the L.C.M(a,b) is \_\_\_\_  
a)  $p^3q^3r$       b)  $p^3q^2r^2$       c)  $p^3q^3r^2$       d) pqr
5. H.C.F(45,63) is expressed as  $45m - 63 \times 2$ . Then 'm' = \_\_\_\_  
a) 2      b) 3      c) -3      d) None of these
6. If 1 is a zero of the polynomial  $x^3 - 8x^2 + 19x - 12$ , the other two zeroes are \_\_\_\_  
a) (-3, 4)      b) (-3, -4)      c) (3, -4)      d) (3,4)
7. Ages of two friends differ by two years. After 5 years if the sum of their ages is one years less than three times the age of the younger one then elder's present age is \_\_\_\_  
a) 13 years      b) 15 years      c) 14 years      d) 17 years

8. A circle whose centre is at the origin passes through the point  $(-4, -3)$ . Then the coordinates of other end of the diameter through this point are \_\_\_\_\_
- a)  $(4,3)$                       b)  $(-4,3)$                       c)  $(4, -3)$                       d) None of these.
9. From a pack of well shuffled cards all face cards are removed. One card is drawn at random. The probability that the drawn card bears number 10 is \_\_\_\_\_
- a)  $1/10$                       b)  $1/52$                       c)  $1/13$                       d) None of these.
10. The probability that a normal year will have exactly 52 Sundays is \_\_\_\_\_
- a) 1                      b)  $1/7$                       c)  $6/7$                       d)  $5/7$
11. The face of a circular washer is 1 cm wide. If the inner radius is 'r' cm, then area of the face of the washer is \_\_\_\_\_  $\text{cm}^2$
- a)  $\pi(r+1)^2$                       b)  $\pi r^2$                       c)  $\pi(2r+1)$                       d)  $\pi(2r-1)$
12. A conical tent has diameter 35 m and slant height 54 m. If the width of the canvas used to make the tent is 3 m then its width is \_\_\_\_\_
- a) 90 m                      b) 990 m                      c) 900 m                      d) 99 m
13. If  $\sin A - \cos A = 0$ , then value of  $\sin^4 A + \cos^4 A$  is \_\_\_\_\_
- a) 1                      b)  $\frac{1}{2}$                       c)  $\frac{3}{4}$                       d)  $\frac{1}{4}$
14.  $(\sec A + \tan A)(1 - \sin A) =$  \_\_\_\_\_
- a)  $\sec A$                       b)  $\sin A$                       c)  $\cos A$                       d)  $\text{cosec } A$ .
15.  $\sec^4 A - \sec^2 A =$  \_\_\_\_\_
- a)  $\tan^2 A - \tan^4 A$                       b)  $\tan^4 A - \tan^2 A$                       c)  $\tan^4 A + \tan^2 A$                       d) None of these.
16. If  $\sqrt{3} \tan A = 1$ , then value of  $\frac{\text{cosec } A + \sin A}{\text{cosec } A - \sin A}$  is \_\_\_\_\_
- a)  $5/3$                       b)  $5/2$                       c)  $3/2$                       d) None of these
17. In a right triangle 'a' and 'b' are the sides making right angle and 'p' is the perpendicular on the hypotenuse. Then
- a)  $p^2 = a^2 b^2$                       b)  $p^2 = \frac{a^2 b^2}{a^2 + b^2}$                       c)  $p^2 = \frac{a^2 - b^2}{a^2 b^2}$                       d) None of these.

18. The side of the largest square that can be inscribed in a circle of radius 'r' cm is \_\_\_ cm.

- a)  $2r$                       b)  $\sqrt{2} r$                       c)  $\frac{1}{2} r$                       d) None of these.

19. In a triangle ABC right angled at A,  $AD \perp BC$ . If  $AB = 6\text{cm}$ ,  $BD = 3.6\text{ cm}$  then  $BC =$  \_\_\_

- a) 6.3 cm                      b) 9 cm                      c) 9.6 cm                      d) 10 cm

20. Diagonals of a quadrilateral ABCD intersect at O such that  $OA/OC = OB/OD$ , then ABCD is a\_

- a) Parallelogram                      b) rectangle                      c) Trapezium                      d) Kite.

## Section- B

21. Decimal representation of  $\frac{175}{2^3 \times 5^7}$  ends after \_\_\_ decimal places.

- a) 7                      b) 5                      c) 3                      d) can't say

22. Two people A and B start walking together. If their steps measure 60 cm and 65 cm what is the minimum distance nearest to a kilometer they have to cover that can be measured in exact number of steps?

- a) 1 km                      b) 1000.62 m                      c) 999.84m                      d) 999.8 m

23. 378 English book, 63 maths and 252 Science books are to be arranged in stacks in a library. Each stack should be of sam height and contain books of same subject. How many stacks of English books would be there?

- a) 5                      b) 6                      c) 3                      d) 2

24. If  $\alpha, \beta$  are zeroes of the polynomial  $ax^2 + bx + c$  then the polynomial whose zeroes are  $1/\alpha$  and  $1/\beta$  is \_\_\_\_\_

- a)  $cx^2 + bx + a$                       b)  $cx^2 - bx + a$                       c)  $ax^2 - bx - c$                       d)  $ax^2 + bx - c$

25. A boat can go 30 km down stream in 3hours and return in 5 hours. The speed of boat in still water and that of the stream respectively are \_\_\_\_\_

- a) (12, 2)                      b) (6,4)                      c) (8, 2)                      d) (10,2)

26. In  $\Delta ABC$ , the median AD on BC measures 4 cm. If  $BC = 10\text{ cm}$ ,  $AB^2 + AC^2 =$  \_\_\_\_\_

- a) 80 cm                      b) 82 cm                      c) 41 cm                      d) 42 cm.

27. From the top of the two poles measuring 6 m and 4 m ropes have been tied to the foot of opposite poles. The height at the intersection of the ropes is \_\_\_\_\_

- a) 5 m                      b) 3.2 m                      c) 2.4 m                      d) 2 m
28. A line segment measures 13 units. If the coordinates of one end are (2,3) and abscissa of the other end is 7, then its ordinate is \_\_\_\_
- a) ( 15, -9)                      b) (-15,-9)                      c) (-15,9)                      d) None of these
29.  $P\left(\frac{21}{5}, \frac{-2}{5}\right)$  divides the line segment joining points A( 5,2 ) and B ( 3,-4) in the ratio \_\_\_\_
- a) 4 : 1                      b) 3 : 2                      c) 2 : 3                      d) 1 : 5
30. Raju has certain number of hens and sheep. If the total number of heads is 60 and total number of legs is 140, the number of sheep \_\_\_\_
- a) 10                      b) 20                      c) 50                      d) 40
31. The value of 'k' for which the system of equations  $2x - 3y = 7$  ;  $(k+2)x - (2k+1)y = 3(2k-1)$  will have no solution is \_\_\_\_
- a) 4                      b) -4                      c) 3                      d) -3
32. If  $\sin(A - B) = \frac{1}{2}$  and  $\cos(A + B) = 0$ , then measure of angle B is \_\_\_\_
- a)  $60^\circ$                       b)  $45^\circ$                       c)  $30^\circ$                       d)  $90^\circ$
33. The value of  $\cos 10^\circ \cos 20^\circ \cos 30^\circ \dots \dots \dots \cos 90^\circ$  is \_\_\_\_
- a) 1                      b) 0                      c) -1                      d) none of these
34. If  $3\cos A = 5\sin A$ , value of  $\frac{5\sin A - 2\sec^3 A + 2\cos A}{5\sin A + 2\sec^3 A - 2\cos A}$  is \_\_\_\_
- a)  $\frac{271}{979}$                       b)  $\frac{316}{2937}$                       c)  $\frac{542}{2937}$                       d) None of these
35. Two dice are tossed together. The probability that the sum of the scores displayed is 5 is \_\_\_\_
- a) 1/9                      b) 2/9                      c) 1/12                      d) 1/6
36. A bag contains 6 red balls and some blue balls. By adding 8 more blue balls the probability of drawing a blue ball is twice that of drawing red ball. The original number of blue balls is \_\_\_\_
- a) 6                      b) 4                      c) 8                      d) None of these.
37. A field is in the form of an equilateral triangle of side 42m. At each corner a cow is tied with a rope of 14 m long. The ungrazed area of the field is \_\_\_\_  $m^2$  (take  $\pi = 3.14$ ,  $\sqrt{3} = 1.73$ )
- a) 147.49                      b) 150.49                      c) 149.44                      d) None of these

38. Length of an arc of a circle of radius 14 cm is 17.6 cm. The area of the corresponding sector \_  
a)  $17.6 \text{ cm}^2$       b)  $123.2 \text{ cm}^2$       c)  $132.2 \text{ cm}^2$       d)  $176 \text{ cm}^2$
39. The value of 'k' if P (0,2) is equidistant from (3,k) and (k,5)\_\_\_  
a) -1      b) -2      c) 1      d) 2
40. The area of the minor segment of a circle formed by a chord whose central angle is  $30^\circ$  and radius 'r' cm is \_\_\_\_  
a)  $\frac{r^2(\pi-3)}{12}$       b)  $\frac{r^2(\pi-3)}{6}$       c)  $\frac{r^2(\pi-4)}{12}$       d) None of these.

## Section – C

### Case study- 1

Students of a class are made to stand in rows. Had there been two students less in each row three rows would have been added. Had there been two students more in each row two rows would have been reduced.

41. The number of students in the class is \_\_\_  
a) 60      b) 90      c) 100      d) 120
42. If the ratio of the boys to girls in the class is 3 :2 the number of girls in the class is \_\_\_  
a) 48      b) 60      c) 72      d) 24
43. How many more students would be required so that students can form a square\_\_\_  
a) 12      b) 1      c) 49      d) 24
44. If 20 students of this class are shifted to another class can the remaining students form a square?  
a) No      b) Data insufficient      c) yes      d)can't say
45. If the average age of girls is 14.5 years and that of boys is 15 years the average age of the class is \_\_\_\_\  
a) 15 years      b) 15.2 years      c) 14.6 years      d) 14.8 years

**Case Study II :** Similar triangles are those which are similar in shape. The geometrical polygons which are equiangular are invariably similar. However, similar figures can also be obtained by rotation, reflection, shadows etc. The corresponding sides of two similar polygons are always proportional.

46 .Perimeters of two similar triangles are 24 cm and 36 cm respectively. If the longest side of the bigger triangle measures 15 cm, the length of the corresponding side of the smaller triangle is

- (i) 8cm (ii) 10 cm (iii) 6 cm (iv) 12 cm.

47. Length of the shadow of a 6 cm long pencil during particular time of the day is found to be 9 cm, then the length of an electric pole whose shadow at the same time of the day measures 30 m is

- (i) 20 m (ii) 18 m (iii) 15 m (iv) 25m

48. Sides of two similar triangles are in the ratio 2 : 5. If the area of the smaller triangle is  $100 \text{ cm}^2$ , area of the larger triangle is –

- i)  $125 \text{ cm}^2$  (ii)  $225 \text{ cm}^2$  (iii)  $600 \text{ cm}^2$  (iv)  $625 \text{ cm}^2$

49. Sides of two similar triangles are in the ratio 2 : 3. If the length of a median of smaller triangle is 15 cm, the length of the corresponding median of the bigger triangle is \_\_

- i) 45 cm. (ii) 22.5 cm (iii) 21 cm (iv) 24.5 cm

50. If  $\Delta PQR$  is similar to  $\Delta ABC$ , which of the following is incorrect.?

- i)  $\frac{PQ}{QR} = \frac{AB}{BC}$  (ii)  $\frac{PQ}{QR} = \frac{AB}{AC}$  (iii)  $\frac{PR}{PQ} = \frac{AC}{AB}$  (iv)  $\angle Q = \angle B$