



# MATHEMATICS POINT<sup>TM</sup>

[Platform for +1, +2, IIT-JEE, AIEEE & Maths Olympiad]

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**www.mathematicspoint.com**

## SAMPLE TEST-1 (11<sup>TH</sup>) PAPER-1

**Time : 1 Hour 30 Minutes**

**Maximum Marks : 120**

**Please read the Instructions carefully**

### (A) General instructions

- This booklet contains 35 Questions and has 10 Pages.
- Space for rough work is given on every Page for each problem
- Answer to any problem will be consider only if you give correct reasoning in the space provided below each problem

**(B) For Question Paper Format and Marking Scheme, read the instructions printed on the Page number 10.**

**Name of the Candidate**

**Phone No.**

**StartingTime**\_\_\_\_\_

**Date :-**



- 
5. Rs. 1000 is given to A, B and C in some ratio. A is wrongly given double and C is wrongly given half, which is Rs. 500 and Rs. 250 respectively. how much is given to B ?  
a) 500                      b) 250                      c) 750                      d) None of the above
6. In a certain code language if CAMP is written as 9, then in the same code how will the word TEAM be written ?  
a) 14                      b) 19                      c) 27                      d) 33
7. Ram carried 1000 kg of watermelon in summer by train. In the beginning, the water content was 99%. By the time Ram reached the destination, the water content had dropped to 98%. The reduction in the weight of the watermelon was:  
a) 10 kg                      b) 50 kg                      c) 100 kg                      d) 500 kg
8. Six persons A, B, C, D, E and F are sitting in two rows, three persons are sitting in each row  
E is not at the end of any row  
D is second to the left of F  
C, the neighbour of E, is sitting diagonally opposite to D  
B is the neighbour of F  
Who are sitting in each column  
a) A and D; E and F; and B and C  
b) A and F; D and E; and B and C  
c) B and D; A and C; and E and F  
d) A and D; B and E; and F and C
9. An orange vendor makes a profit of 20% by selling oranges at a certain price. If he charges Rs. 1.2 higher per orange he would gain 40%. Find the original price at which he sold an orange  
a) Rs. 5                      b) Rs. 4.8                      c) Rs. 6                      d) none of these

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10. The sum of the incomes of A and B is more than that of C and D taken together. The sum of incomes of A and C is the same as that of B and D taken together. Moreover, A earns half as much as the sum of the incomes of B and D. Whose income is highest ?

- a) A                      b) B                      c) C                      d) D

11. A work can be completed by 40 workers in 40 days. If 5 workers leave every 10 days, in how many days work will be completed ?

- a) 55, 66                      b) 56, 44                      c) 56, 66                      d) 58, 66

12. Neha adds the degree measures of the interior angles of a convex polygon and arrives at a sum of 2017. She then discovers that she forgot to include one angle. What is the degree measure of the forgotten angle?

- a) 37                      b) 63                      c) 117                      d) 143

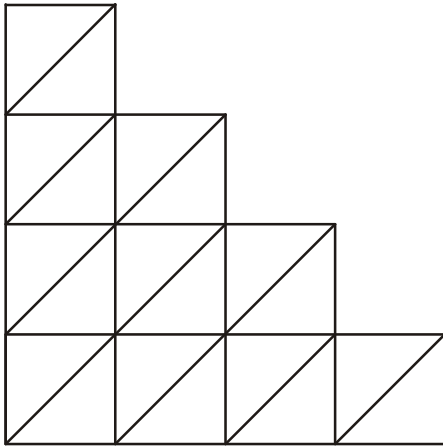
13. Let  $S(n)$  equal the sum of the digits of positive integer  $n$ . For example,  $S(1906) = 16$ . For a particular positive integer  $n$ ,  $S(n) = 1274$ . Which of the following could be the value of  $S(n + 1)$ ?

- a) 1                      b) 1265                      c) 12                      d) 1239

14. Two numbers X and Y are 20% and 28% less than a third number Z. Find by what percentage is the number Y less than the number X ?

- a) 8%                      b) 12%                      c) 10%                      d) 9%

**Direction (Q.No. 15-16)** Observe the following figure and answer the following questions by choosing the correct alternative given below.



15. Find the number of rectangles which are not squares  
a) 16                      b) 20                      c) 24                      d) 22
16. How many squares are there in the figure ?  
a) 0                        b) 3                        c) 10                      d) 13
17. The salary of a worker is first increased by 12% and thereafter it was reduced by 12%, what was the change in the salary  
a) 1.44% decrease                      b) 1% increase  
c) no change                              d) 1.44% increase
18. Renu went to the market between 7 am and 8 am. The angle between the hour-hand and the minute-hand was  $90^\circ$ . She returned home between 7 am and 8 am. Then also the angle between the minute-hand and hour-hand was  $90^\circ$ . At what time (nearest to second) did Renu leave and return home ?  
a) 7h 18m 35s and 7h 51m 24s                      b) 7h 19m 24s and 7h 52m 14s  
c) 7h 20m 42s and 7h 53m 11s                      d) 7h 21m 49s and 7h 54m 33s
19. A train requires 7 seconds to pass a pole while it requires 25 seconds to cross a stationary train which is 378 metres long. Find the speed of the train (**in km/h**) ?  
a) 75.6 km/h                      b) 75.4 km/h                      c) 76.2 km/h                      d) 21 km/h

20. In the certain examination, 77% candidates passed in English and 34% failed in Mathematics. If 13% failed in both the subjects and 784 candidates passed in both the subjects, then the total number of candidates was
- a) 1200                      b) 1400                      c) 1600                      d) 1800

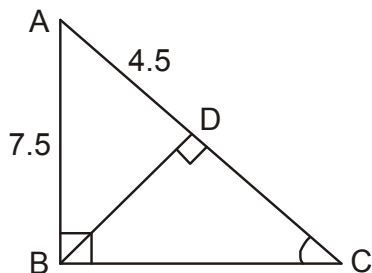
**Section - B**

21. If  $a = \sqrt{6} + \sqrt{5}$ ,  $b = \sqrt{6} - \sqrt{5}$ , then find the value of  $2a^2 - 5ab + 2b^2$ .
- a) 36                      b) 37                      c) 39                      d) 41

22. Out of group of Swans,  $\frac{7}{2}$  times the square root of number of Swans are playing on the shore of the tank. Remaining two are quarreling in the water. Calculate the total number of Swans. Find the number of Swans playing on the shore of the tank.
- a) 14, 16                      b) 16, 12                      c) 14, 12                      d) 16, 14

23. If  $\frac{x}{2y+z-x} = \frac{y}{2z+x-y} = \frac{z}{2x-y-z}$  and  $x+y+z \neq 0$ , then what is each ratio equal to:
- a)  $\frac{1}{2}$                       b)  $\frac{1}{3}$                       c) 2                      d)  $\frac{2}{3}$

24. In the above figure  $\triangle ABC$ ,  $m\angle B = 90^\circ$   $BD \perp AC$ ,  $AD = 4.5$ ,  $AB = 7.5$ , then find  $A(\triangle BDC) : A(\triangle ABC)$



- a) 16 : 25                      b) 4 : 5                      c) 25 : 16                      d) 5 : 4

25. A roller of diameter 1.4 m and length 1.4 m is used to press the ground having area 3080 sq.m. Find the number of revolutions that the roller will make to press the ground.

- a) 700                      b) 500                      c) 1000                      d) 800

26. If a line passes through the intersection point of the graphs of the lines  $x + 2y = 7$  and  $x - y = 4$  and the origin, then find the equation of the line.

- a)  $y = 0.5x$                       b)  $y = 5x$                       c)  $y = 0.2x$                       d)  $y = -2x$

27. Pentagon ABCDE is such that all five diagonals AC, BD, CE, DA and EB lie entirely within it. If the area of each of the triangle ABC, BCD, CDE, DEA and EAB is equal to  $1 \text{ cm}^2$ , the area of the pentagon is :

- a)  $\frac{5\sqrt{5}}{2} \text{ cm}^2$                       b)  $\frac{3 + \sqrt{5}}{2} \text{ cm}^2$   
c)  $\frac{5 + \sqrt{5}}{2} \text{ cm}^2$                       d)  $\frac{5 - \sqrt{5}}{2} \text{ cm}^2$

28.  $\triangle ABC$  is a right angled triangle with  $\angle A = 90^\circ$ ,  $AB = b \text{ cm}$ ,  $AC = a \text{ cm}$  and  $BC = c \text{ cm}$ . A circle is inscribed in this triangle. The radius of the circle, in cm, is :

- a)  $a + b - c$                       b)  $\frac{1}{2}(a + b - c)$   
c)  $\frac{1}{2}(a - b + c)$                       d)  $\sqrt{a^2 + b^2 + c^2}$

29. Let  $x$  be the greatest number by which if we divide 366, 513 and 324, then in each case the remainder is the same. The sum of digits of  $x$  is :

- a) 3                      b) 4                      c) 5                      d) 7

30. Consider the points  $A(-5, -1)$ ,  $B(-1, 0)$ ,  $C(1, 2)$  and  $D(1, 3)$ . Let  $P$  be a point such that  $d = PA^2 + PB^2 + PC^2 + PD^2$ . The least possible value of  $d$  is :
- a) 28                      b) 30                      c) 32                      d) 34

31. A solid metallic sphere of radius  $r$  is converted into a solid right circular cylinder of radius  $R$ . If the height of the cylinder is twice the radius of the sphere then :
- a)  $R = r$                       b)  $R = \frac{r\sqrt{2}}{\sqrt{3}}$                       c)  $R = \sqrt{\frac{2r}{3}}$                       d)  $R = \frac{\sqrt{3}r}{\sqrt{2}}$

32. If  $x, y$  are real numbers such that  $3^{\frac{x}{y}+1} - 3^{\frac{x}{y}-1} = 24$ , then the value of  $(x + y) / (x - y)$  is :
- a) 0                      b) 1                      c) 2                      d) 3

33. Two identical circles intersect so that their centres and the points at which they intersect, form a square of side 1 cm. The area in square cm of the portion that is common to the two circles is
- a)  $\pi/4$                       b)  $\frac{\pi}{2} - 1$                       c)  $\pi/5$                       d)  $\sqrt{2} - 1$

34. If the roots of  $(p - q)^2 x^2 + 2(p^2 - q^2)x + k = 0$  are equal, then  $k =$
- a)  $(p + q)^2$                       b)  $(p - q)^2$                       c)  $(p^2 - q^2)$                       d) 0



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35. There are 10 horses, named Horse 1, Horse 2, . . . , Horse 10. Horse  $k$  runs one lap in exactly  $k$  minutes. At time 0 all the horses are together at the starting point on the track. The horses start running in the same direction, and they keep running around the circular track at their constant speeds. The least time  $S > 0$ , in minutes, at which all 10 horses will again simultaneously be at the starting point is
- a)  $S = 2520$       b)  $S = 2480$       c)  $S = 2660$       d)  $S = 2720$



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## Question Paper Format

The Question Paper consists of 2 sections named A, B.

- **Section A** Contains 20 Multiple Choice Questions. Each Question has 4 choices (a), (b), (c), (d). Out of which **only one choice is correct**.
- **Section B** Contains 15 Multiple Choice Questions. Each Question has 4 choices (a), (b), (c), (d). Out of which **only one choice is correct**.

## Marking Scheme

- For each Question in **Section A**, you will be **awarded 3 marks** if you have marked the correct option and **Zero mark** if no option is marked . In all other cases, **Minus one mark (– 1)** will be awarded.
- For each Question in **Section B**, you will be **awarded 4 marks** if you have marked the correct option and **Zero mark** if no option is marked . In all other cases, **Minus one mark (– 1)** will be awarded.

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1. c)	2. a)	3. b)	4. b)	5. b)
6. c)	7. d)	8. d)	9. d)	10. b)
11. c)	12. d)	13. d)	14. c)	15. d)
16. d)	17. a)	18. d)	19. a)	20. b)
21. c)	22. d)	23. a)	24. a)	25. b)
26. c)	27. d)	28. b)	29. a)	30. d)
31. b)	32. d)	33. b)	34. a)	35. a)

**Answers**