# MATHS

# BOOKS - VGS BRILLIANT MATHS (TELUGU ENGLISH)

# 2019 MARCH PUBLIC EXAMINATION PAPER

## Questions

**1.** Write A=[2,4,8,16] in set builder form.

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**2.** Find the value of $\log_5 \sqrt{625}$.

**3.** The larger of two supplementary angles exceeds the smaller by $58°$, then find the angles.

**4.** Find the curved surface area of cylinder, whose radius is 7cm. And height is 10 cm.

**5.** Rohan's mother is 26 years older than him. The product of their ages after 3 years will be 360. Then write the required quadratic equation to find Rohan's present age.

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**6.** Find the zeroes of the quadratic polynomial $x^2 - x - 30$ and verify the relation between the zeroes and its co-efficients.

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**7.** A Joker's cap is in the form of right circular cone, which base radius is 7 cm and height is 24 cm. Find the area of

sheet required to make 10 such caps.

**8.** Find the HCF of 1260 and 1440 by using Euclid's division lemma.

**9.** If the sum of first 15 terms of an A.P is 675 and its first term is 10, then find $25°$ term.

**10.** Show that $2 + 5\sqrt{3}$ is irrational.

OR

**11.** Check whether -321 is a term of the A.P. : 22, 15, 8, 1,.....

**12.** In a class test, the sum of Moulika's marks in Mathematics and English is 30. If she got 2 marks more in Mathematics and 3 marks less in English, the product of her marks would have been 210. Find her marks in the two subjects.

**13.** An oil drum is in the shape of cylinder , whose diameter is 2m and height is 7m. The painter charges Rs 5 per $m^2$ to paint the drum. Find the total charges to be paid to the painter for 10 drums.

**14.** IF A={x:x is a natural number less than is 6}

B={x:x is a prime number which is a divisor by 60}

C={x:x is an odd number less than 10}

D={x:x is an even number which is a divisor by 48}

Then write roster from all above sets and find

(i) $A \cup B$ (ii) $B \cap C$ (iii) A-D

(iv) D-B .

(OR)

15. 6 pencils and 4 notebooks together cost Rs.90/- whereas 8 pencils and 3 notebooks together cost Rs.85/-. Find the cost of one pencil and that of one notebook.

16. Find the zeroes of the quadratic polynomial $p(x) = x^2 + x - 20$

**17.** Solve the following pair of linear equations graphically.

2x+y=4 and 2x-3y=12.

**18.** IF n(A)=8,n(B)=6, n(A ∩ B)=3, then n(A ∪ B)=..........

A. 5

B. 7

C. 9

D. 13

**Answer: C**

**19.** The discriminant of $6x^2 - 5x + 1 = 0$ is .........

A. 1

B. 2

C. 6

D. $-\dfrac{5}{6}$

**Answer: A**

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**20.** Sum of the zeroes of the polynomial $x^2 + 5x + 6$ is......

A. 5

B. -5

C. 6

D. $\dfrac{5}{6}$

**Answer: B**

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**21.** Which of the following is not irrational?

A. $\sqrt{2}$

B. $\sqrt{3}$

C. $\sqrt{4}$

D. $\sqrt{5}$

**Answer: C**

**22.** One root of the equation $x - \dfrac{3}{x} = 2$ is..........

A. 1

B. 2

C. 3

D. 4

**Answer: C**

**23.** IF 4,a,9 are in G.P., then a=...........

A. 6

B. $\pm 6$

C. 7

D. $\pm 7$

**Answer: B**

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**24.** IF total surface area of a cube is $96cm^2$, then its volume is............

A. $32cm^3$

B. $64cm^3$

C. $128cm^3$

D. $256cm^3$

**Answer: B**

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**25.** $\log_{10} 0.001 = \ldots\ldots\ldots$ .

A. 2

B. 3

C. -2

D. -3

**Answer: D**

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**26.** Match the following :

If $\alpha, \beta, \gamma$ are zeroes of a cubic polynomial

$ax^3 + bx^2 + cx + d(a \neq 0)$, then..........

| | |
|---|---|
| **i)** $\alpha + \beta + \gamma$ | (a) $-\dfrac{d}{a}$ |
| **ii)** $\alpha\beta + \beta\gamma + \gamma\alpha$ | (b) $\dfrac{c}{a}$ |
| **iii)** $\alpha\beta\gamma$ | (c) $-\dfrac{b}{a}$ |

A. (i)-c,(ii)-b,(iii)-a

B. (i)-a,(ii)-b,(iii)-c

C. (i)-b,(ii)-a,(iii)-c

D. (i)-c,(ii)-a,(iii)-b

**Answer: A**

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**27.** The next term is A.P. $\sqrt{3}, \sqrt{12}, \sqrt{27}$ is........

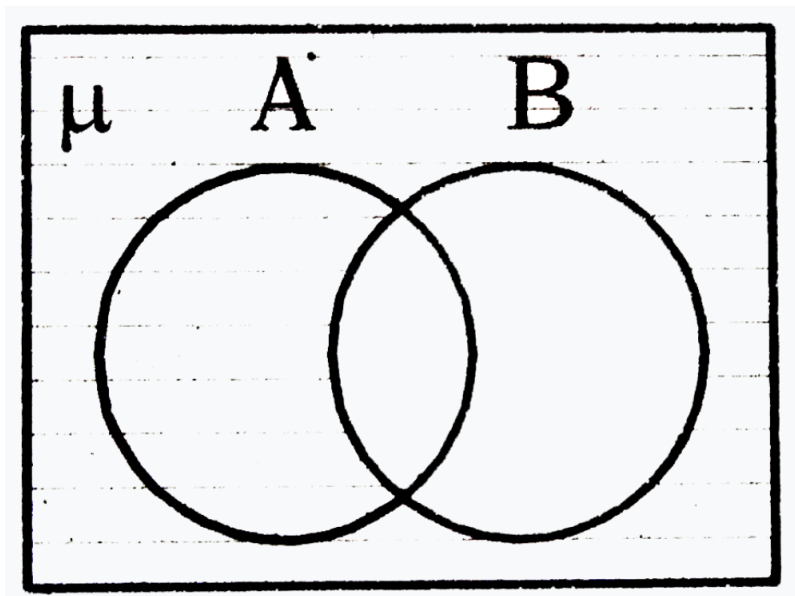A. $\sqrt{32}$

B. $\sqrt{36}$

C. $\sqrt{42}$

D. $\sqrt{48}$

**Answer: D**

**28.** The shaded region in the given figure below:



A. A-B

B. B-A

C. $\mu - B$

D. $A \cup B$

Answer: C

**29.** 5x-3 represents ............polynomial.

A. Linear

B. Quadratic

C. Cubic

D. A and B

**Answer: A**

**30.** The common difference of A.P. $\log_2 2, \log_2 4, \log_2 8$ is.........

A. 1

B. 2

C. 3

D. 4

**Answer: A**

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**31.** The sum of first 'n' odd natural number is............

A. n

B. $n^2$

C. $n(n+1)$

D. $\dfrac{n(n+1)}{2}$

**Answer: B**

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**32.** The quadratic polynomial, whose zeroes are $\sqrt{2}$ and $-\sqrt{2}$ is............
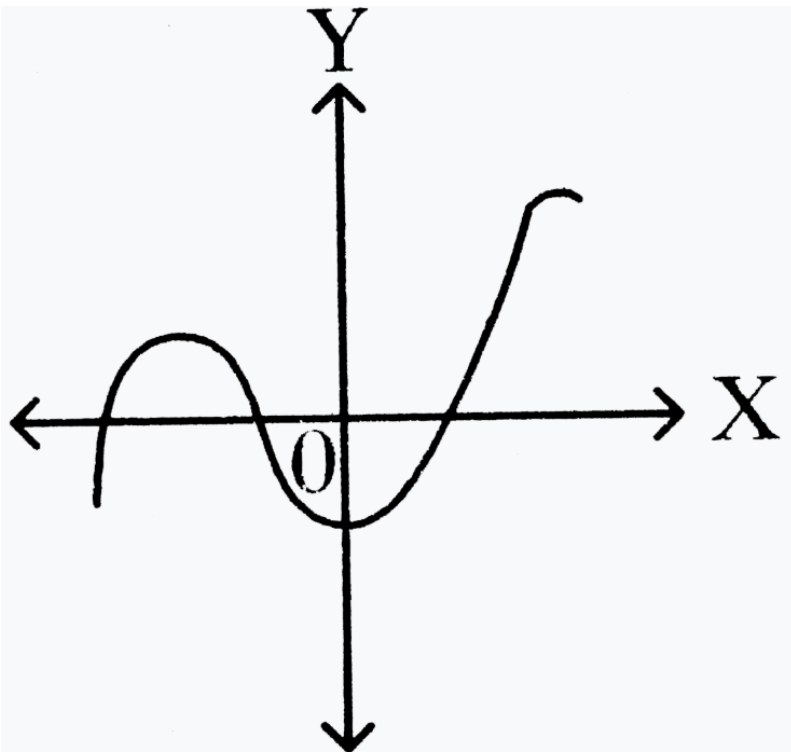
A. $x^2 - 2$

B. $x^2 + 2$

C. $x^2 + \sqrt{2}$

D. x-2

**Answer: A**

**33.** The number of zeroes of the polynomial in the graph is............



A. 0

B. 1

C. 2

D. 3

**Answer: D**

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**34.** The line $2x - 3y = 8$ intersects X-axis at.........

A. (2,-3)

B. (0,-3)

C. (2,0)

D. (4,0)

**Answer: D**

**35.** The volume of cone , whose radius is 3 cm and height is 8cm, is ...........$cm^3$.

    A. $6\pi$

    B. $12\pi$

    C. $18\pi$

    D. $24\pi$

**Answer: D**

**36.** IF $6x + 2y - 9 = 0$ and $kx + y - 7 = 0$ has no solution, then k=........

A. 3

B. 2

C. -3

D. -2

**Answer: A**

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**37.** IF the equation $x^2 + 5x + K = 0$ has no real and distinct roots, then.........

A. $K = 6$

B. $K < 6.25$

C. $K > 6$

D. $K > 25$

**Answer: B**

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**38.** In $\triangle ABC, LM \mid \mid BC$ and $\dfrac{AL}{LB} = \dfrac{2}{3}, AM = 5cm.$

Find AC

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**39.** Evaluate $\sin 15°$ . $\sec 75°$ .

**40.** A box contains 3 blue and 4 red balls . What is the probability that the ball taken out randomly will be red?

**41.** The mean for a grouped data is calculated by

$$\bar{x} = a + \frac{\sum f_i d_i}{\sum f_i} \ .$$

What do the terms $'f_i'$ and $'d_i'$ represent in the above formula?

**42.** IF the distance between two points (x,1) and (-1,5) is '5'. Find the value of 'x'.

**43.** Find the length of the tangent from a point 13 cm away from the centre of the circle of radius 5 cm.

**44.** IF $\cos A = \dfrac{7}{25}$, then find sin A and cosec A. What do you observe?

**45.** Rehman observed the top of the temple at an angle of elevation of $30°$, when the observation point is 24 m. away from the foot of the temple. Find the height of the temple.

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**46.** Write mid-values of the following frequency distribution.

| Class Interval | 8 – 11 | 12 – 15 | 16 – 19 | 20 – 23 | 24 – 27 | 28 – 31 | 32 – 35 |
|---|---|---|---|---|---|---|---|
| Frequency | 4 | 4 | 5 | 13 | 20 | 14 | 8 |

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**47.** Prove that

$$(\sin A + \cos ecA)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$$

.

**48.** ABC is a right angled triangle, right angled at C. Let BC=a, CA=b,AB=c and let p be the length of perpendicular from C on AB.

Prove that (i) pc=ab and (ii) $\dfrac{1}{p^2} = \dfrac{1}{a^2} + \dfrac{1}{b^2}$.

**49.** Find the median of the following data.

| Class Interval | 11-15 | 16-20 | 21-25 | 26-30 | 31-35 | 36-40 |
|---|---|---|---|---|---|---|
| Frequency | 3 | 5 | 9 | 12 | 7 | 4 |

**50.** In what ratio does the point ( - 4 , 6) divide the line segment joining the points A ( - 6 , 10) and B ( 3 , - 8) ? $(AS_1)$

**51.** Two dice is thrown at the same time. What is the probability that the sum of two numbers appearing on the top of the dice is (a) 10,(b) less than or equal to 12, ( c) a prime number , (d) multiple of '3'?

**52.** A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground by making $30°$ angle with the ground. The distance between the foot of the tree and the top of the tree on the ground is 6 m. Find the height of the tree before falling down.

**53.** Construct a triangle PQR, where QR=5.5 cm , $\angle Q = 65°$ and PQ=6 cm. Then draw another triangle, whose sides are $\frac{2}{3}$ times of the corresponding sides of $\Delta PQR$.
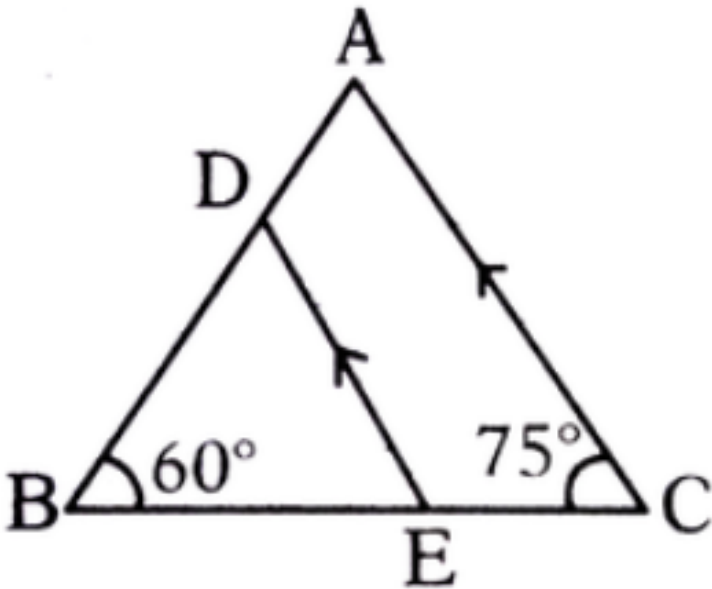
**54.** Draw a circle of radius 4 cm and draw a pair of tangent to the circle, which are intersecting each other 6 cm away from the centre.

**55.** In the figure, $\angle BDE$=..........

A. $45^\circ$

B. $65^\circ$

C. $75^\circ$

D. $60^\circ$

**Answer: A**

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**56.** $\cos 60^\circ + \sin 30^\circ$ value is........

A. $\sqrt{3}/2$

B. 1

C. $\cos 90^\circ$

D. B and C

**Answer: B**

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**57.** A={2,3,5,6,8},B={2,5,7} then $A \cup B$

A. {2,5}

B. {2,3,5,6,8}

C. {2,3,5,6,7,8}

D. none

**Answer:**

**58.** Centroid of triangle , whose vertices are ( - a , 0) , (0 , b) and (a , 0) is ........

A. (a,b)

B. $\left(\dfrac{a}{3}, 0\right)$

C. $\left(0, \dfrac{b}{3}\right)$

D. $\left(\dfrac{a}{3}, \dfrac{b}{3}\right)$

**Answer: C**

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**59.** The formula to find the area of a tri-angle is ....

A. $\Delta = \dfrac{1}{2}bh$

B. $\Delta = \sqrt{(s-a)(s-b)(s-c)}$

C. $\Delta = \sqrt{s(s-a)(s-b)(s-c)}$

D. A and C

**Answer: D**

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**60.** The theorem applied to divide the line segment in the given ratio is..............

A. Pythagoras theorem

B. Thales theorem

C. Euclid theorem's

D. Brahmagupta theorem

**Answer: B**

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**61.** The number of tangents drawn at the end points of the diameter is……

A. 1

B. 2

C. 3

D. Infinite

**Answer: B**

**62.** IF $\sec A + \tan A = \dfrac{1}{5}$, then sec A- tan A=.........

A. 5

B. $\dfrac{1}{5}$

C. $\dfrac{4}{5}$

D. $\dfrac{2}{5}$

**Answer: A**

**63.** The length of shadow of a pole is equal to the length of the pole, then the angle of the elevation of the Sun is ............

A. $15^\circ$

B. $30^\circ$

C. $45^\circ$

D. $60^\circ$

**Answer: C**

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**64.** Angle is a semi-circle is.........

A. $60^\circ$

B. $90^\circ$

C. $180^\circ$

D. $270°$

**Answer: B**

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**65.** The probability that the sum of two numbers appearing on the top of the dice is 13,when two dice are rolled at the same time is............

A. -1

B. 1

C. 0

D. 2

**Answer: C**

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**66.** IF P ( E ) =0.05, then P $\left(\overline{E}\right)$ =.........

A. 0.5

B. 0.95

C. 9.5

D. 0.095

**Answer: B**

**67.** The mode of the data 5,6,9,10,6,11,4,6,10,4 is..........

A. 4

B. 5

C. 6

D. 10

**Answer: C**

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**68.** Reciprocal of $\tan\theta$ is............

A. $\sec\theta$

B. $\cot\theta$

C. $\cos ec\theta$

D. $-\tan\theta$

**Answer: B**

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**69.** $\left(\sec^2\theta - 1\right)\left(\cos ec^2\theta - 1\right) = \ldots\ldots\ldots$

A. 0

B. 1

C. $\tan^2\theta$

D. $\cot^2\theta$

**Answer: B**

**70.** The centre of the circle is (2,1) and one end of the diameter is (3,-4). Another end of the diameter is...........

A. (1,6)

B. (-1,-6)

C. (1,-6)

D. (-1,6)

**Answer: A**

**71.** The letter that represents $\dfrac{x_1 - a}{h}$, which is used in measuring mean is........

A. $d_1$

B. $f_1$

C. $u_1$

D. $\bar{x}$
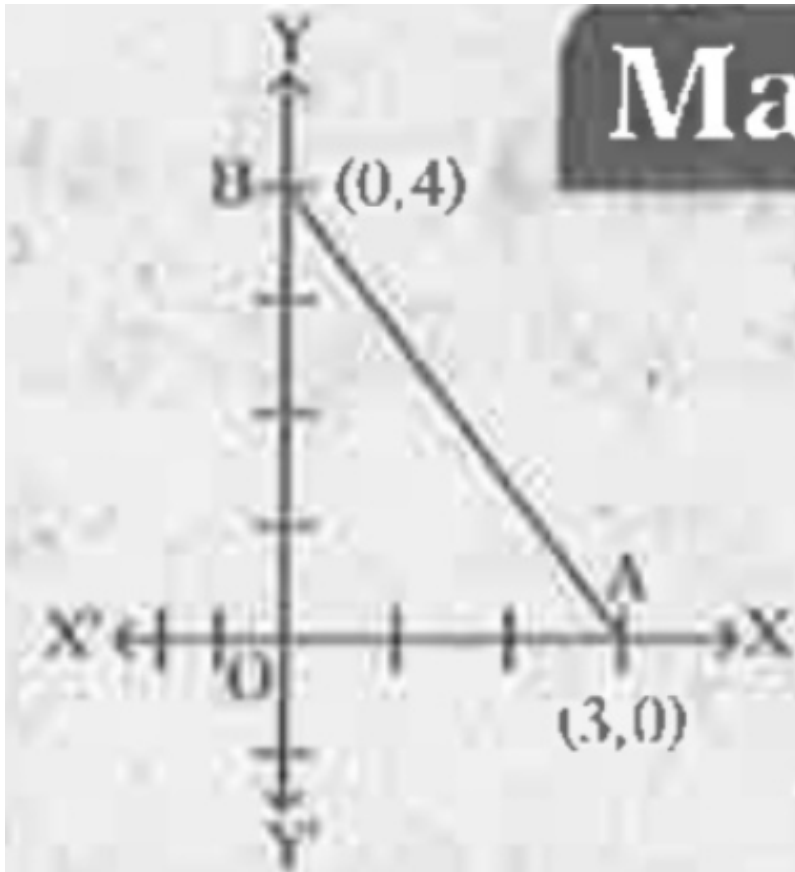
**Answer: C**

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**72.** In the given figure, area of $\triangle OAB$ is .......



A. 12 sq.u.

B. 6 sq.u.

C. 24 sq.u

D. 18 sq.u

**Answer: B**

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**73.** Which of the following be the probability of an event?

A. -1.5

B. 2.4

C. 0.7

D. 1.15

**Answer: C**

**74.** $\sin(90 - A) = \dfrac{1}{2}$, then A=............

A. $30^\circ$

B. $45^\circ$

C. $60^\circ$

D. $90^\circ$

**Answer: C**

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