



MATHS

BOOKS - ARIHANT PUBLICATION

BIHAR

MODEL SOLVED PAPER 2017

Multiple Choice Questions

1. A, B and C can complete a work in 2h. If A does the job alone in 6h and B in 5h, how long

will it take for C to finish the job alone ?

A. $5\frac{1}{2}h$

B. $7\frac{1}{2}h$

C. $9h$

D. $4\frac{1}{2}h$

Answer: B



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2. The shadow of a tower standing on a level plane is found to be 40 m longer when the sun 's altitude is 45° , than when it is 60° . The height of the tower is

A. 644 m

B. 66.644 m

C. 54.644 m

D. 76.644 m

Answer: C



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3. What is the HCF of $8(x^5 - x^3 + x)$ and $28(x^6 + 1)$?

A. $4(x^4 - x^2 + 1)$

B. $x^3 - x + 4x^2$

C. $x^3 - x + 3x^2$

D. None of these

Answer: A



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4. If one of the roots of the quadratic equation $7x^2 - 50x + k = 0$ is 7, then is the value of k ?

A. 7

B. 1

C. $\frac{50}{7}$

D. $\frac{7}{50}$

Answer: A



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5. If each side of a cube is increased by 30 %
then find the change in surface area?

A. 40 %

B. 38.4 %

C. 35 %

D. 69 %

Answer: D



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6. In 4 years. Rs 6000 amounts to Rs 8,000. In what time at the same rate will Rs 525 amount to Rs 700 ?

A. 2 yr

B. 3 yr

C. 4 yr

D. 5 yr

Answer: C



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7. 6 bells commence tolling together and toll of intervals are 2, 4, 6, 8, 10 and 12 s, respectively. In 1 h, how many times, do they toll together?

A. 16

B. 32

C. 21

D. 31

Answer: D



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8.

If

$a = 1 - \sqrt{2}$, then find the value of $\left(a - \frac{1}{a}\right)^3$

A. $20\sqrt{3}$

B. $24\sqrt{3}$

C. $26\sqrt{3}$

D. $22\sqrt{3}$

Answer: B



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9. If $\sec \theta + \tan \theta = p$, then $\cos \theta$ is

A. $\frac{\rho^2 + 1}{\rho^2 - 1}$

B. $\frac{\rho^2 - 1}{(\rho^2 + 1)^2}$

C. $\frac{2\rho}{\rho^2 + 1}$

D. $\frac{4\rho^2}{(\rho^2 + 1)^2}$

Answer: C



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10. If point (x, y) is equidistant from the points $(-1,1)$ and $(4,3)$, then

A. $10x + 4y = 23$

B. $6x + 4y = 23$

C. $-x - y = 7$

D. $4x + 3y = 0$

Answer: A



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11. If $3 \log_8 x = 2$ then the value of x is

A. 4

B. 8

C. 3

D. 10

Answer: A



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12. The following observations have been arranged in ascending order. If the median of the data is 63, find the value of x .

29, 32, 48, 50, x , $x + 2$, 72, 78, 84, 95

A. 26

B. 62

C. 27

D. 72

Answer: B



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13. If $\tan 15^\circ = 2 - \sqrt{3}$, then the value of $\tan 15^\circ \cot 75^\circ + \tan 75^\circ \cot 15^\circ$ is

A. 14

B. 12

C. 10

D. 8

Answer: A



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14. In universal set $a = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ $B = \{6, 7, 8\}$ and $A \cup C = \{1, 2, 3, 4, 5, 6\}$, then set $(A \cup B \cup C)$ is

A. $\{1, 2, 3, 4, 5\}$

B. $\{1, 2, 3, 4, 5, 6, 7, 8\}$

C. $\{1, 2, 3\}$

D. $\{9\}$

Answer: D



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15. If $2x^{\frac{1}{3}} + 2x^{-\frac{1}{3}} = 5$, then $x^{\frac{1}{3}}$ equals to

A. 1 or -1

B. 2 or $\frac{1}{2}$

C. 8 or $\frac{1}{8}$

D. 3 or $\frac{1}{3}$

Answer: B



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16. What is the difference between compound interest and simple interest for 2 yr on the sum of ? 1250 at 4% pa ?

A. Rs. 3

B. Rs. 4

C. Rs. 2

D. Rs. 8

Answer: C



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17. Angle between the straight lines $5x + 7y - 3 = 0$ and $7x - 5y + 7 = 0$ is

A. 60°

B. 90°

C. 45°

D. 30°

Answer: B



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18. If the 10th term and 16th term of an AP are 52 and 82 respectively, then find its 32nd term.

A. 81

B. 91

C. 162

D. 182

Answer: C



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19.

If

$$n = 50, \sum x = 250 \text{ and } \sum x^2 = 2500,$$

then standard deviation is

A. 5

B. $\sqrt{5}$

C. 25

D. None of these

Answer: A



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20. The ratio between the present age of Tarun and Varun is 3 :7 respectively. After 4 yr, Varun's age will be 39 yr. What was Tarun's age 4 yr ago?

A. 12 yr

B. 13 yr

C. 19 yr

D. 11 yr

Answer: D



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21. The maximum length of a pencil that can be kept in a rectangular box of dimensions $8\text{cm} \times 6\text{cm} \times 2\text{cm}$, is

A. $2\sqrt{13}\text{cm}$

B. $2\sqrt{14}\text{cm}$

C. $2\sqrt{26}\text{cm}$

D. $10\sqrt{2}\text{cm}$

Answer: C



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22. If $a^x = b^y = c^z$ and $abc = 1$ then find the value of $xy + yz + zx$

A. 1

B. 3

C. 0

D. 5

Answer: C



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23. Two numbers are in the ratio of 4 : 7. If 5 is subtracted from each, the ratio becomes 1 : 2. Find the greater number.

A. 15

B. 40

C. 20

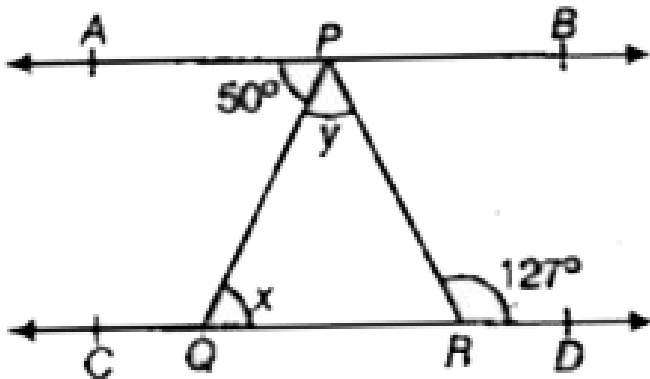
D. 35

Answer: D



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24. In figure , if $AB \parallel CD$,
 $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find
the value of x and y



A. $50^\circ, 127^\circ$

B. $50^\circ, 77^\circ$

C. $50^\circ, 87^\circ$

D. 50° , 97°

Answer: B



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25. If $\sin \theta + \cos \theta = \sqrt{2}$, then find the value of θ .

A. 45°

B. 60°

C. 30°

D. 90°

Answer: A



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26. The value of x in

$$\log_{10}(x + 1) - \log_{10}(x - 1) = 1 \text{ is}$$

A. $\frac{1}{2}$

B. ± 3

C. $\frac{9}{11}$

D. $\frac{11}{9}$

Answer: D



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27. The perimeter of a sector of a circle of radius 5.2cm is 16.4cm. Find the area of the sector.

A. 14.6cm^2

B. 15.6cm^2

C. 16.6cm^2

D. 12.6cm^2

Answer: B



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28. In the given table, frequency distribution of marks obtained by the students in a question paper of mathematics are given below

Class interval	0-10	10-20	20-30	30-40	40-50
Frequency	5	6	9	12	4

Then, median of marks is

A. 27.7

B. 25

C. 17.3

D. 9

Answer: A



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29. If $a = \frac{x}{x+y}$ and $b = \frac{y}{x-y}$, then $\frac{ab}{a+b}$ is equal to $\frac{xy}{x^2+y^2}$ (b) $\frac{x^2+y^2}{xy}$ (c) $\frac{x}{x+y}$ (d)

$$\left(\frac{y}{x+y}\right)^2$$

A. $\frac{xy}{x^2 + y^2}$

B. $\frac{x^2 + y^2}{xy}$

C. $\frac{x}{x+y}$

D. $\left(\frac{x}{x+y}\right)^2$

Answer: A



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30. A wheel makes 4000 revolutions in moving a distance of 44 km. Find the radius of the wheel.

A. 15 m

B. 27 m

C. 25 m

D. 1.75 m

Answer: C



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