



MATHS

BOOKS - SELINA MATHS (ENGLISH)

SAMPLE PAPER 1

Questions Section A

1. If the equation $x^2 + 6x + p = 0$ has real and distinct roots, then:

A. $p < 9$

B. $p > 9$

C. $p \leq 9$

D. $p \geq 9$

Answer: A



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2. If the fifth term of an A.P. is 16 and the ninth term is 28, then the 12th term is:

A. 34

B. 37

C. 35

D. 36

Answer: B



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3. A sum of money is divided between P and Q in the ratio 3:7. If Q's share is Rs.5,215, then P's share is:

A. Rs.2,230

B. Rs.3,235

C. Rs.2,235

D. Rs.3,230

Answer: C



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4. If $x \in N$ the solution set of inequation

$$4x - 2 \leq x + 16 \text{ is:}$$

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

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

C. {1,2,3,4,5, 6, 7, 8, 9}

D. {1, 2, 3, 4, 5, 6}

Answer: D



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5. If the roots of the quadratic equation $2kx^2 + (2a + b)x - ab = 0$ are $(-2, a)$, the value of k is:

A. -1

B. -2

C. 1

D. 2

Answer: A



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6. The sum of the first twelve terms of an A.P. is three times the sum of the first six terms, then

the ratio of the first term to the common difference is:

A. 7:2

B. 2:7

C. 3:5

D. 1:7

Answer: A



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7. If the order of a matrix A is 4×3 and the order of the matrix B is 3×2 then the order of matrix AB is:

A. 4×2

B. 2×4

C. 4×3

D. 3×2

Answer: A



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8. The model of an aeroplane is made to a scale of 1: 150. If the length of the model is 5 m, then the length of the plane is:

A. 30 m

B. 750 m

C. 155 m

D. 300 m

Answer: B



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9. Mr. Raj gets Rs.7,688 at the end of one year at the rate of 12% per annum in a recurring deposit account. Find the monthly instalment.

A. Rs.500

B. Rs.600

C. Rs.700

D. Rs.800

Answer: B



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10. When $2x^3 + 2x^2 - mx + 3$ is divided by $x + 2$, the remainder is $m - 3$. The value of m is:

A. 3

B. 1

C. 2

D. 4

Answer: C



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11. If $\begin{bmatrix} 1 & -2 \\ 8 & x \end{bmatrix} = \begin{bmatrix} 1 & -2 \\ 8 & 6 \end{bmatrix}$, then x is equal to:

A. 6

B. ± 6

C. -6

D. 0

Answer: A



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12. 2.5, 5, x and 10 are in proportion. Then x is equal to:

A. 6

B. 2.5

C. 12

D. 5

Answer: D



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13. Richard had a R.D. account in the SBI and deposited 800 per month. If the maturity value of this account was Rs.21,200 and the rate of interest was 10% per annum, find the time (in years) for which the account was held.

A. 1

B. 2

C. 3

D. 4

Answer: B





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14. Given : $A = \{x : 5x - 4 \geq 6, x \in R\}$ and $B = \{x : 5 - x > 1, x \in R\}$. Then, $A \cap B$ is:

A. $\{x : 2 \leq x < 4, x \in R\}$

B. $\{x : 2 \leq x > 4, x \in R\}$

C. $\{x : 2 \geq x < 4, x \in R\}$

D. $\{x : 2 < x < 4, x \in R\}$

Answer: A



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15. $\triangle ABC$ and $\triangle PQR$ are similar triangles such that area $(\triangle ABC) = 36\text{cm}^2$ and area $(\triangle PQR) = 64\text{cm}^2$. If $AB = 4.2$ cm then length of PQ is:

A. 5 cm

B. 4.6 cm

C. 5.6 cm

D. 6 cm

Answer: C



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16. If $(x + 2)$ is a factor of $3x^3 - x^2 - px - 4$,
then the value of p is:

A. 14

B. 12

C. 10

D. 16

Answer: D



Questions Section B

1. Given that $A = B^2$ where

$$A = \begin{vmatrix} 16 & x \\ 0 & 1 \end{vmatrix}, B = \begin{vmatrix} 4 & 2 \\ 0 & 1 \end{vmatrix}. \text{ Then value of } x \text{ is :}$$

A. 10

B. 2

C. 5

D. 8

Answer: A



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2. The solution of the given equation is:

$$\frac{2}{x^2} - \frac{5}{x} + 2 = 0$$

A. 2

B. 1

C. -2

D. -1

Answer: A



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3. A shopkeeper buys a T.V from a manufacturer for Rs.14000 and marks up its price by 20%. The shopkeeper gives a discount of 10% on the marked up price and he gives further off season discount of 5% on the balance. If the sales are intra state and the rate of GST is 14%, then find the tax paid by the shopkeeper to the state government.

A. Rs.25.48

B. Rs.24.48

C. Rs.20.48

D. Rs.49.48

Answer: A



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4. A two digit number is 4 times the sum of its digits and is also equal to 8 more than twice

the product of its digits. The two digit number is:

A. 14

B. 20

C. 12

D. 21

Answer: C



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5. If the sum of n terms of an A.P. is given by

$$S_n = 5n^2 - 3n, \text{ then the common difference}$$

of the A.P. is:

A. 7

B. 12

C. 8

D. 10

Answer: D



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Questions Section C

1. Ashwin wants to buy a car and plans to take loan from a bank for his car. He repays his total loan of Rs. 1,18,000 by paying every month starting with the first instalment of Rs.1,000. If he increases the instalment by Rs.100 every month, answer the following:

The amount paid by him in 30th installment is:

A. Rs.3,900

B. Rs.3,500

C. Rs.3,700

D. Rs.3,600

Answer: A



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2. Ashwin wants to buy a car and plans to take loan from a bank for his car. He repays his total loan of Rs. 1,18,000 by paying every month starting with the first instalment of Rs.1,000. If he increases the instalment by

Rs.100 every month, answer the following:

The amount paid by him in the 30 installments is:

A. Rs.37,000

B. Rs.73,500

C. Rs.75,300

D. Rs.75,000

Answer: B



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3. Ashwin wants to buy a car and plans to take loan from a bank for his car. He repays his total loan of Rs. 1,18,000 by paying every month starting with the first instalment of Rs.1,000. If he increases the instalment by Rs.100 every month, answer the following:

What amount does he still have to pay after 30th installment?

A. Rs.45,500

B. Rs.49,000

C. Rs.44,500

D. Rs.54,000

Answer: C



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4. Ashwin wants to buy a car and plans to take loan from a bank for his car. He repays his total loan of Rs. 1,18,000 by paying every month starting with the first instalment of Rs.1,000. If he increases the instalment by Rs.100 every month, answer the following:

If total installments are 40, then the amount paid by him in the last installment is:

A. Rs.4,900

B. Rs.3,900

C. Rs.5,900

D. Rs.9,400

Answer: A



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5. Raj and Ajay are very close friends. Both the families decided to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 hours more than Ajay to complete the journey of 400 km.

What will be the distance covered by Ajay's car in two hours?

A. $2(x + 5)km$

B. $(x - 5)km$

C. $2(x + 10)km$

D. $(2x + 5)km.$

Answer: A



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6. Raj and Ajay are very close friends. Both the families decided to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 hours more than Ajay to complete the journey of 400 km.

Which of the following quadratic equation describe the speed of Raj's car?

A. $x^2 - 5x - 500 = 0$

B. $x^2 + 4x - 400 = 0$

C. $x^2 + 5x - 500 = 0$

D. $x^2 - 4x + 400 = 0$

Answer: C



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7. Raj and Ajay are very close friends. Both the families decided to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 hours more than Ajay to complete the journey of 400 km.

What is the speed of Raj's car?

- A. 20 km/hour
- B. 15 km/hour
- C. 25 km/hour

D. 10km/hour

Answer: A



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8. Raj and Ajay are very close friends. Both the families decided to go to Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 hours more than Ajay to

complete the journey of 400 km.

How much time Ajay took to travel 400 km?

A. 20 hour

B. 40 hour

C. 25 hour

D. 16 hour

Answer: D



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9. Consider a ratio $x : y = 16 : 9$

The ratio $\frac{3x + 2y}{3x - 2y}$ is equal to:

A. 8 : 3

B. 11 : 5

C. 32 : 27

D. 9 : 7

Answer: B



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10. Consider a ratio $x : y = 16 : 9$

The ratio $\frac{2x^2 + 3y^2}{2x^2 - 3y^2}$

A. 512 : 243

B. 247 : 193

C. 755 : 269

D. 391 : 167

Answer: C



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11. Consider a ratio $x : y = 16 : 9$

If $a : b$ is the sub duplicate ratio of $x : y$ then

A. $4 : 3$

B. $256 : 81$

C. $16 : 9$

D. $18 : 11$

Answer: A



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12. Consider a ratio $x : y = 16 : 9$

If m is the third proportion to 16 and 9, then m is equal to:

A. 12.5

B. $\frac{256}{9}$

C. 16

D. $\frac{81}{16}$

Answer: D



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