

MATHS, STATS & REASONING**All Questions is compulsory.**

1. Ans. a

Explanation:

$$A^{-1} = \frac{1}{|A|} \text{adj } A$$

$$= \frac{1}{(6-5)} \begin{bmatrix} 3 & -5 \\ -1 & 2 \end{bmatrix}$$

$$= \begin{bmatrix} 3 & -5 \\ -1 & 2 \end{bmatrix}$$

2. Ans. c

Explanation:

$$D = P \left(\frac{R}{100} \right)^2$$

$$768 = P \left(\frac{8}{100} \right)^2$$

$$P = 1,20,000$$

3. Ans. d

Explanation:

$$E = \left[\left(1 + \frac{r}{100} \right)^n - 1 \right] \times 100$$

$$= \left[\left(1 + \frac{6}{200} \right)^2 - 1 \right] \times 100 = 6.09\%$$

4. Ans. b

Let the sum be Rs. x. Then, $\left(\frac{x \times 10 \times 7}{100 \times 2} \right) - \left(\frac{x \times 12 \times 5}{100 \times 2} \right) = 40$

$$\Leftrightarrow \frac{7x}{20} - \frac{3x}{10} = 40 \Leftrightarrow x = (40 \times 20) = 800.$$

Hence, the sum is Rs. 800.

5. Ans. b

Explanation:

$$T_5 = a + 4d = 14 \dots\dots\dots (i)$$

$$T_{12} = a + 11d = 35 \dots\dots\dots (ii)$$

On solving equation (i) and (ii)

$$a = 2$$

6. Ans. c
Explanation:
तरीकों की संख्या $= {}^4P_3 \times 4!$
7. Ans. b
Explanation:
 $-2x + 3y \geq 6$ काटती है X अक्ष पर $(-3, 0)$
Y अक्ष पर $(0, 2)$
तथा Y, X से ज्यादा है। अतः (B) विकल्प सही है।
8. Ans. d
Explanation:
 $r = -3$
 $S_\infty = \frac{a}{1-r}, -1 < r < 1$
9. Ans. d
Explanation:
 $A = P \left(1 + \frac{r}{100}\right)^n$
 $1 = P \left(1 + \frac{10}{100}\right)^2$
 $P = 0.83$
10. Ans. c
Explanation:
 $|A A^T| = |A| |A^T|$
 $= |A| |A|$
 $= 5 \times 5 = 25$
11. Ans. d
Explanation:
SI for 2 years $= 5,680 - 5,200 = 480$
SI for 5 years $= \frac{480}{2} \times 5 = 1,200$
 $P = 5,200 - 1,200 = \text{Rs. } 4,000$
 $\text{Rate} = \frac{100 \times 1,200}{4,000 \times 5} = 6\%$
12. Ans. b
Explanation:
$$x \left(1 + \frac{10}{100}\right)^8 = (8,840 - x) \left(1 + \frac{10}{100}\right)^{10}$$

$$X = 4,840$$

$$B = 8,840 - 4,840 = \text{Rs. } 4,000$$

13. Ans. a
Explanation:

$$P = \frac{R}{r} [1 - (1+r)^{-n}]$$

$$5,00,000 = \frac{R}{.08} [1 - (1+0.8)^{-3}]$$

$$R = \text{Rs. } 1,94,016.75$$
14. Ans. b
Exp. $= \log_{60} 3 + \log_{60} 4 + \log_{60} 5$
 $= \log_{60} 60 = 1$
15. Ans. c
Explanation:
 $1Rs. : 50P : 25P$
 $4x, 5x, 6x$
 $4x + \frac{250x}{100} + \frac{150x}{100} = 120$
 $x = 15$
 $25 \text{ पैसे के सिक्कों की संख्या} = 6 \times 15 = 90$
16. Ans. d
Explanation:
विभिन्न शब्दों की संख्या $= \frac{11!}{4!4!2!}$
 $S = 4, P = 2, I = 4$
17. Ans. b
Explanation:
 3×2 मैट्रिक्स का गुणा 2×3 मैट्रिक्स से 3×3 मैट्रिक्स होगी।
18. Ans. b
Explanation:

$$P = \frac{R}{r} = \frac{30,000}{0.58} = 5,17,241.38$$
19. Ans. c
Explanation:

$$A = P \left(1 + \frac{r}{100} \right)^n$$

$$\frac{25}{16} P = P \left(1 + \frac{r}{100} \right)^2$$

$$\left(\frac{5}{4} \right)^2 = \left(1 + \frac{r}{100} \right)^2$$

$$\frac{5}{4} = 1 + \frac{r}{100}$$

$$r = 25\%$$

20. Ans. b
Explanation :

$$\frac{10000 \times 2 \times r}{100} + \frac{6000 \times 3 \times r}{100} = 1900$$

$$r = 5\%$$
21. Ans. a
Explanation :
 Black Red + White Ball

$$3 \quad 6$$

$$3c_1 \times 6c_2 + 3c_2 \times 6c_1 + 3c_3 = 64$$
22. Ans. c
Explanation :
 $(A-B) \cup C$
 $\{2, 6, 9\} \cup \{2, 6, 8\}$
 $= \{2, 6, 8, 9\}$
23. Ans. d
Explanation :

$$\log_3 x + \log_3 x = \frac{3}{2}$$

$$\log_3 x \times \frac{3}{2} = \frac{3}{2}$$

$$\log_3 x = 1$$

$$x = 3$$
24. Ans. a
Explanation :
 Let cost of one chair and one table are x and y respectively, then
 $5x + 3y = 350 \dots\dots(i)$
 $3x + 5y = 370 \dots\dots(ii)$
 on solving eqⁿ (i) and eqⁿ (ii)
 $x = 40, y = 50$
 Cost of one table and two chairs is Rs. 130
25. Ans. d
Explanation:
 No. of different ways can be failed $= 2^4 - 1$
26. Ans. a
Explanation:
 If $(b+c), (c+a), (a+b)$ are in A.p.
 Then $2(c+a) = b+c+a+b$
 $2b = a+c$
27. Ans. b
Explanation :
 $ar^3 = 3$
 $a \times ar \times ar^2 \dots\dots ar^6 = a^7 r^{21}$
 $= (ar^3)^7$
 $= 3^7$

28. Ans. d

29. Ans. a

Explanation :

$$\begin{aligned}\text{No. of diagonals} &= n_{c_2} - n \\ &= 6_{c_2} - 6 = 9\end{aligned}$$

30. Ans. a

Explanation :

$$3 \log y + 5 \log x = 8 \log(x+y)$$

$$\frac{3}{y} \frac{dy}{dx} + \frac{5}{x} = \frac{8}{x+y} \left[1 + \frac{dy}{dx}\right]$$

$$\frac{dy}{dx} \left[\frac{3}{y} - \frac{8}{x+y} \right] = \frac{8}{x+y} - \frac{5}{x}$$

$$\frac{dy}{dx} = \frac{y}{x}$$

31. Ans. a

Explanation :

$$\begin{aligned}n(A \times B) &= n(A) \times n(B) \\ &= 5 \times 3 = 15\end{aligned}$$

32. Ans. a

33. Ans. a

34. Ans. c

35. Ans. b

36. Ans. a

37. Ans. c

38. Ans. a

39. Ans. a

40. Ans. d

41. Ans. b

42. Ans. c

43. Ans. c

44. Ans. b

45. Ans. c

- 46. Ans. a
- 47. Ans. b
- 48. Ans. d
- 49. Ans. a
- 50. Ans. d
- 51. Ans. b
- 52. Ans. c
- 53. Ans. d
- 54. Ans. b
- 55. Ans. c
- 56. Ans. d
- 57. Ans. a
- 58. Ans. b
- 59. Ans. a
- 60. Ans. a
- 61. Ans. b
- 62. Ans. c
- 63. Ans. a
- 64. Ans. b
- 65. Ans. c
- 66. Ans. c
- 67. Ans. a
- 68. Ans. a
- 69. Ans. a
- 70. Ans. b
- 71. Ans. d

72.

Ans. a

Explanation:

$$5x + 7y - 22 = 0$$

$$6x + 2y - 22 = 0$$

$$r = \sqrt{\frac{10}{42}}$$

$$b_{yx} = \frac{-5}{7}$$

$$b_{xy} = -\frac{2}{6} \quad -\frac{5}{7} = -\frac{\sqrt{\frac{10}{42}} \times \sqrt{15}}{\sigma_x} \quad \sigma_x = 2.646$$

73.

Ans. b

Explanation:

$$\text{Coefficient of range} = \frac{L - S}{L + S}$$

Where L → for largest value

S → for smallest value

$$\text{Coefficient of range} = \frac{40 - 10}{40 + 10} = \frac{30}{50} = \frac{3}{5}$$

74.

Ans. b

Explanation:

$$\text{G.M.} = (2 \times 2^2 \times 2^3 \times 2^4 \times 2^5 \times 2^6)^{1/6}$$

$$= 2^{7/2}$$

75.

Ans. b

Explanation:

$$\text{संशोधित आय} = \frac{200}{110} \times 325 = 590.90$$

इसीलिये कर्मचारी को हानि हुई है।

76.

Ans. d

Explanation :

जो कि मूल के बदलाव से स्वतंत्र तथा पैमाने के बदलाव पर आश्रित होते हैं।

77.

Ans. a

78.

Ans. a

79.

Ans. c

80.

Ans. b

Explanation:

Less than ogive & more than Ogive intersect at a point called MEDIAN or we can say second quartile.

81. Ans. b

Explanation:

माध्य से लिये गये विचलनों का बीजगणितीय योग शून्य होता है।

उदाहरण	X_i	$X_i - \bar{X}$	$\bar{X} = \frac{\sum X_i}{n}$
	10	-10	
	20	0	
	30	10	
		<u>0</u>	$= \frac{10+20+30}{3}$
			$= 20$

$$\text{अतः } \sum X_i - \bar{X} = 0$$

82. Ans. b

83. Ans. a

Explanation:

Laspeyre's Price Index is based on base year Quantity.

$$L = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

Since Formula is

Hence Q_0 is constant.

84. Ans. b

85. Ans. a

86. Ans. a

87. Ans. b

88. Ans. b

89. Ans. b

90. Ans. d

91. Ans. c

92. Ans. d

93. Ans. c

94. Ans. b

95. Ans. c

96. Ans. c

97. Ans. a

98. Ans. c

99. Ans. b

100. Ans. a
