100 MUST DO MCQS OF

CA FOUNDATION MATHS

(100 MCQS)

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CA. PRANAV POPAT

- Chartered Accountant by Qualification
- Educator Dil Se ♡
- Qualified all CA levels in very first attempt
- My Aim is to remove Maths Phobia from commerce background students and make Stats and Maths as their strength to crack CA Exam
- Educator at Unacademy for CA Foundation Maths, LR and Stats and CA Intermediate Cost and Management Accounting

IMPORTANT NOTE FOR JULY 2021 EXAM STUDENTS

1. To Watch Any Fastrack Lectures of CA. Pranav Popat Sir for Free, use the links given in the next page.

2. To access those links you just have to download Unacademy App and Login, If any unlock code is asked then use my code CAPRANAV

3. After step 2 is done just click the link for the topics you want to watch.

4. Live Marathon just before EXAM is also going on by Pranav Popat Sir at Unacademy CA Foundation YouTube Channel (starting at 7.15 PM on 26th July, 2021) Link

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Telegram Link: *https://t.me/learnwithpranav*

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MATHEMATICS			
Time Value of Money Part I	PLAY	Arithmetic Progression	PLAY
Time Value of Money Part II	PLAY	Geometric Progression	PLAY
Time Value of Money Part III	PLAY	AP and GP - Advance Problems	PLAY
Quiz - Time Value of Money	PLAY	AP and GP - Complete Quiz	PLAY
Ratio	PLAY	Quadratic Equation	PLAY
Proportion	PLAY	Other Equations	PLAY
Indices and Log (1.5 hrs)	PLAY	Matrices and Determinants	PLAY
Quiz - Ratio, Proportion, Indices, Log	PLAY	Quiz - Equations and Matrices	PLAY

Permutations and Combinations Part I	PLAY	Sets	PLAY
Permutations and Combinations Part II	PLAY	Relations and Functions	PLAY
Permutations and Combinations Part III	PLAY		
Permutations and Combinations Part IV	PLAY		

STATISTICS

Central Tendency Part I	PLAY	Quiz II	PLAY
Central Tendency Part II	PLAY	Quiz III	PLAY
Central Tendency Part III	PLAY	Probability Part I	PLAY
Disperion Part I	PLAY	Probability Part II	PLAY
Disperion Part II	PLAY	Probability Part III	PLAY
Quiz I	PLAY	Probability Part IV	PLAY
Correlation Part I	PLAY	Quiz IV	PLAY
Correlation Part II	PLAY	Theoretical Distribution Part I	PLAY
Regression Part I	PLAY	Theoretical Distribution Part II	PLAY
Regression Part I	PLAY	Quiz V	PLAY

20. If p : q is the sub-duplicate ratio of $p-x^2 : q-x^2$ then x^2 is

(a) $\dfrac{p}{p+q}$

(b) $\dfrac{q}{p+q}$

(c) $\dfrac{pq}{p+q}$

(d) none of these

21. If 2s : 3t is the duplicate ratio of 2s – p : 3t – p then

    (a) $p^2 = 6st$ (b) $p = 6st$ (c) $2p = 3st$ (d) none of these

2

6. If four numbers $1/2, 1/3, 1/5, 1/x$ are proportional then x is

(a) 6/5   (b) 5/6   (c) 15/2   (d) none of these

3

10. If p/q = r/s = 2.5/1.5, the value of ps : qr is
    (a) 3/5   (b) 1:1   (c) 5/3   (d) none of these

4

15. If $x : y = 2 : 3$, $y : z = 4 : 3$ then $x : y : z$ is

(a) $2 : 3 : 4$ 　　　　(b) $4 : 3 : 2$ 　　　　(c) $3 : 2 : 4$ 　　　　(d) none of these

5

13. If $x^{1/p} = y^{1/q} = z^{1/r}$ and $xyz = 1$, then the value of $p + q + r$ is

(a) 1   (b) 0   (c) 1/2   (d) none of these

6

14. The value of $y^{a-b} \times y^{b-c} \times y^{c-a} \times y^{-a-b}$ is

(a) y^{a+b} (b) y (c) 1   (d) $1/y^{a+b}$

7

17. The value of $(8/27)^{-1/3} \times (32/243)^{-1/5}$ is

(a) 9/4   (b) 4/9   (c) 2/3   (d) none of these

8

22. $\left[\left(x^n \right)^{n-\frac{1}{n}} \right]^{\frac{1}{n+1}}$ is equal to

(a) x^n (b) x^{n+1} (c) x^{n-1} (d) none of these

9

27. If $x = 3^{\frac{1}{3}} + 3^{-\frac{1}{3}}$, then $3x^3 - 9x$ is

(a) 15   (b) 10   (c) 12   (d) none of these

10

30. If $2^x = 3^y = 6^{-z}$, $\dfrac{1}{x} + \dfrac{1}{y} + \dfrac{1}{z}$ is

(a) 1   (b) 0   (c) 2   (d) none of these

11

14. If log x + log y = log (x+y), y can be expressed as

(a) x–1   (b) x   (c) x/x–1   (d) none of these

12

16. If $\log_2 x + \log_4 x + \log_{16} x = 21/4$, these x is equal to
(a) 8   (b) 4   (c) 16   (d) none of these

13

18. Given that $\log_{10}2 = x$, $\log_{10}3 = y$, then $\log_{10}1.2$ is expressed in terms of x and y as
   (a) $x + 2y - 1$ (b) $x + y - 1$ (c) $2x + y - 1$ (d) none of these

14

21. $\log \left[1 - \{1 - (1 - x^2)^{-1}\}^{-1}\right]^{-1/2}$ can be written as

(a) $\log x^2$ (b) $\log x$ (c) $\log 1/x$ (d) none of these

15

25. The value of $\log_8 25$ given $\log 2 = 0.3010$ is

(a) 1   (b) 2   (c) 1.5482   (d) none of these

16

2. The diagonal of a rectangle is 5 cm and one of at sides is 4 cm. Its area is
   a) 20 sq.cm.   b) 12 sq.cm.   c) 10 sq.cm.   d) none of these

17

11. One student is asked to divide a half of a number by 6 and other half by 4 and then to add the two quantities. Instead of doing so the student divides the given number by 5. If the answer is 4 short of the correct answer then the number was

a) 320   b) 400   c) 480   d) none of these.

18

2. The values of x and y satisfying the equations $\dfrac{x}{2}+\dfrac{y}{3}=2$, $x + 2y = 8$ are given by the pair.

   a) (3, 2)   b) (–2, –3)   c) (2, 3)   d) none of these

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3. The age of a person is twice the sum of the ages of his two sons and five years ago his age was thrice the sum of their ages. Find his present age.

   a) 60 years   b) 52 years   c) 51 years   d) 50 years

20

3. The values of $4 + \cfrac{1}{4 + \cfrac{1}{4 + \cfrac{1}{4 + ... \infty}}}$

(a) $1 \pm \sqrt{2}$

(b) $2 + \sqrt{5}$

(c) $2 \pm \sqrt{5}$

(d) none of these

8. If $x = m$ is one of the solutions of the equation $2x^2 + 5x - m = 0$ the possible values of m are

a) (0, 2) b) (0, –2) c) (0, 1) d) (1, –1)

22

4. If α, β be the roots of the equation $2x^2 - 4x - 3 = 0$

the value of $\alpha^2 + \beta^2$ is

a) 5   b) 7   c) 3   d) – 4

23

11. If α and β are the roots of $x^2 = x + 1$ then value of $\dfrac{\alpha^2}{\beta} - \dfrac{\beta^2}{\alpha}$ is

a) $2\sqrt{5}$ b) $\sqrt{5}$ c) $3\sqrt{5}$ d) $-2\sqrt{5}$

4. The area of a rectangular field is 2000 sq.m and its perimeter is 180m. Form a quadratic equation by taking the length of the field as x and solve it to find the length and breadth of the field. The length and breadth are

a) (205m, 80m)   b) (50m, 40m)   c) (60m, 50m)   d) none

25

8. The hypotenuse of a right–angled triangle is 20cm. The difference between its other two sides be 4cm. The sides are

a) (11cm, 15cm) b) (12cm, 16cm)   c) (20cm, 24cm)   d) none of these

26

A distributor of apple Juice has 5000 bottle in the store that it wishes to distribute in a month. From experience it is known that demand D (in number of bottles) is given by $D = -2000p^2 + 2000p + 17000$. The price per bottle that will result zero inventory is

a) ₹ 3　　　　　　b) ₹ 5　　　　　　c) ₹ 2　　　　　　d) none of these.

27

6. The roots of $x^3 + x^2 - x - 1 = 0$ are

a) $(-1, -1, 1)$ b) $(1, 1, -1)$ c) $(-1, -1, -1)$ d) $(1, 1, 1)$

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10) if A=$\begin{pmatrix} 2i & 3i \\ 2i & -i \end{pmatrix}$ $(i^2=-1)$ then $|A|$ = ?

(a) 2   (c) 8

(c) 4   (d) 5

29

21) $\begin{pmatrix} 1 \\ 2 \\ 5 \end{pmatrix} \times (3 \quad 4 \quad 5 \quad 6)$

(a) $\begin{bmatrix} 3 & 4 & 5 & 6 \\ 6 & 8 & 10 & 12 \\ 15 & 20 & 25 & 30 \end{bmatrix}$

(b) $\begin{bmatrix} 3 & 5 & 4 & 6 \\ 6 & 8 & 10 & 12 \\ 12 & 16 & 20 & 24 \end{bmatrix}$

(c) $\begin{bmatrix} 3 & 4 & 5 & 6 \\ 6 & 8 & 10 & 12 \\ 12 & 16 & 20 & 24 \end{bmatrix}$

(d) $\begin{bmatrix} 3 & 4 & 5 & 6 \\ 6 & 8 & 10 & 12 \\ 24 & 16 & 16 & 12 \end{bmatrix}$

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23. $\begin{pmatrix} 1 & -2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix} \times \begin{pmatrix} 1 & 3 & 5 \\ 0 & 2 & 4 \\ 3 & 0 & 5 \end{pmatrix}$

(a) $\begin{bmatrix} 10 & -1 & 12 \\ 22 & 22 & 70 \\ 34 & 37 & 112 \end{bmatrix}$

(b) $\begin{bmatrix} 10 & 1 & 28 \\ 22 & -2 & 70 \\ 34 & -5 & 112 \end{bmatrix}$

(c) $\begin{bmatrix} 10 & 1 & 28 \\ 22 & -2 & -70 \\ 34 & -5 & 112 \end{bmatrix}$

(d) $\begin{bmatrix} 10 & 1 & 28 \\ 22 & -2 & 70 \\ 34 & -5 & -112 \end{bmatrix}$

26) if A= $\begin{pmatrix} 0 & 2 & 2 & 3 \\ 3 & 2 & 1 & 0 \end{pmatrix}$;B= $\begin{pmatrix} 0 & 3 \\ 1 & 2 \\ 2 & 1 \\ 3 & 0 \end{pmatrix}$

(a) AB ≠ BA

(b) AB= BA

(c) AB exists BA not exists

(d) AB not exists BA exists

32

(i) An employer recruits experienced (x) and fresh workmen (y) for his firm under the condition that he cannot employ more than 9 people. x and y can be related by the inequality

(a) $x + y \neq 9$ (b) $x + y \leq 9$ $x \geq 0, y \geq 0$ (c) $x + y \geq 9$ $x \geq 0, y \geq 0$ (d) none of these

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(ii) On the average experienced person does 5 units of work while a fresh one 3 units of work daily but the employer has to maintain an output of at least 30 units of work per day. This situation can be expressed as

(a) $5x + 3y \leq 30$ (b) $5x + 3y > 30$ (c) $5x + 3y \geq 30$ $x \geq 0$, $y \geq 0$ (d) none of these

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(iii) The rules and regulations demand that the employer should employ not more than 5 experienced hands to 1 fresh one and this fact can be expressed as

(a) $y \geq x/5$ (b) $5y \leq x$ (c) $5y \geq x$ (d) none of these

(iv) The union however forbids him to employ less than 2 experienced person to each fresh person. This situation can be expressed as
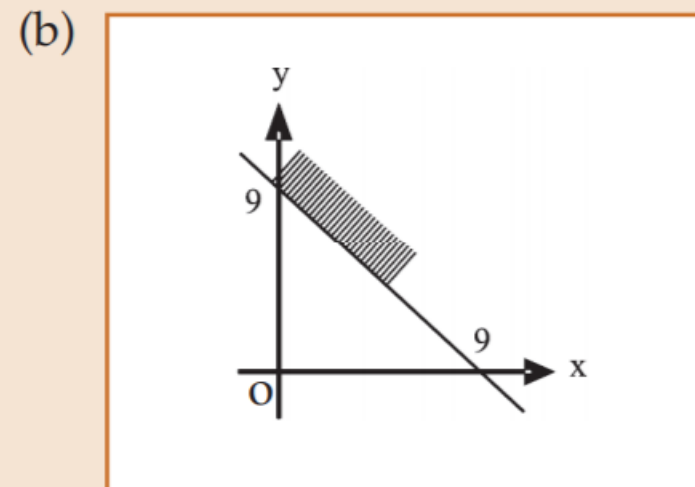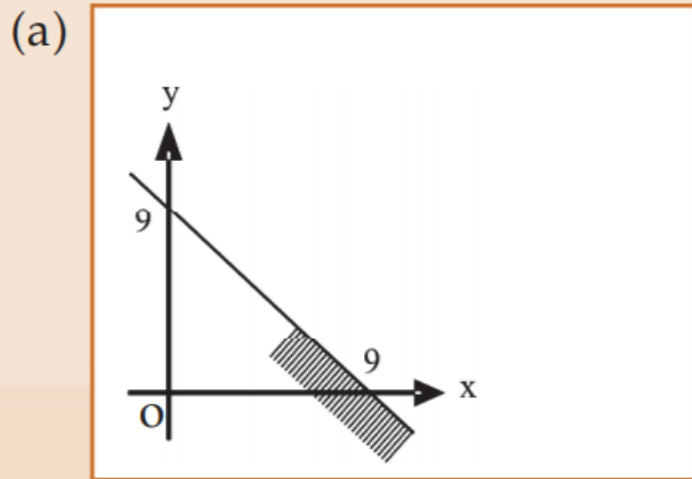
(a) $x \leq y/2$
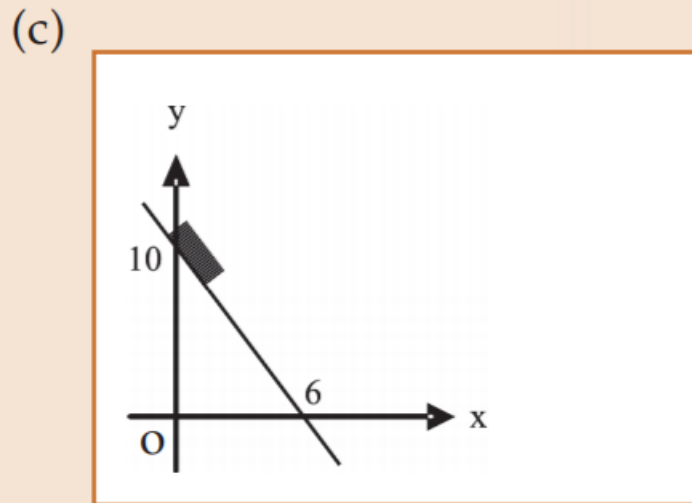
(b) $y \leq x/2$

(c) $y \geq x/2$

(d) $x > 2y$
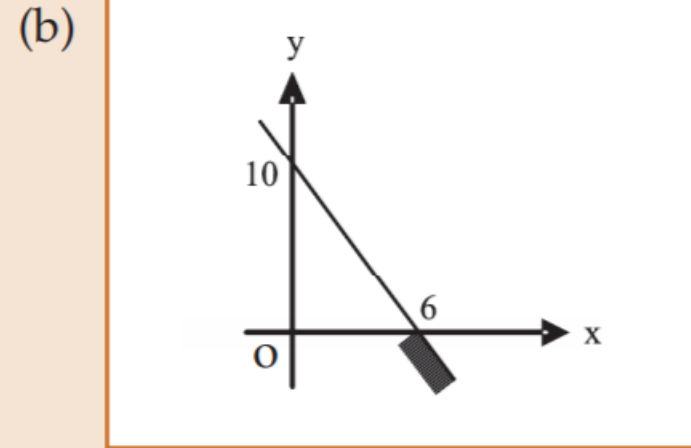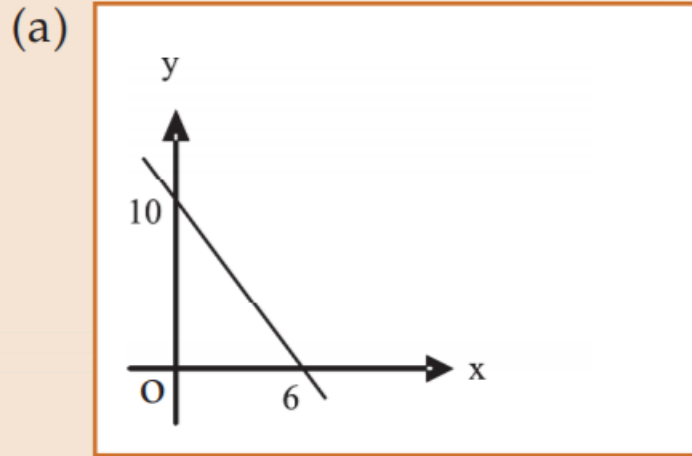
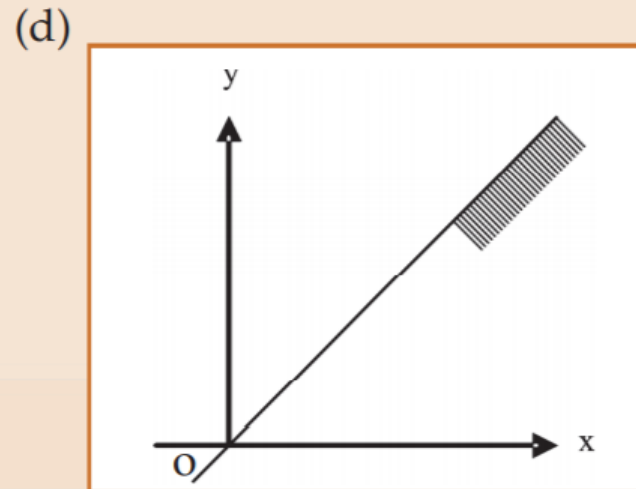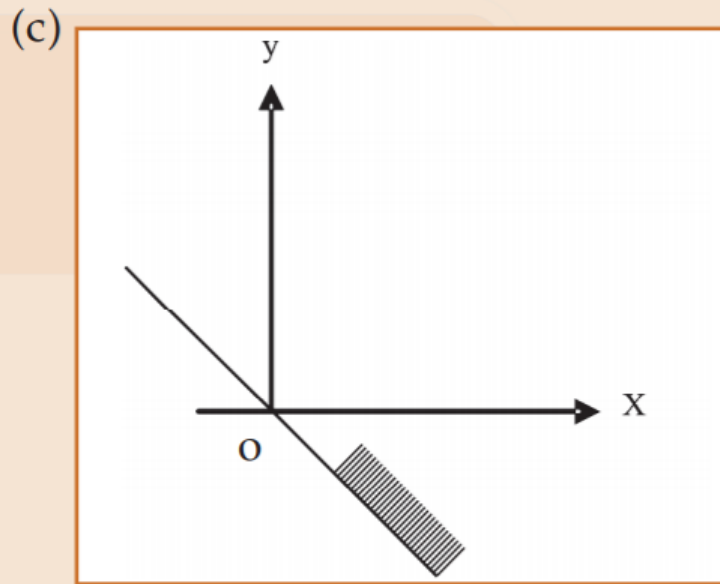(v) The graph to express the inequality $x + y \leq 9$ is
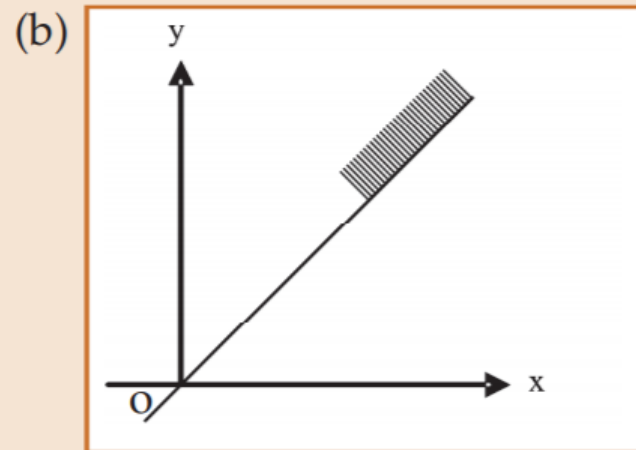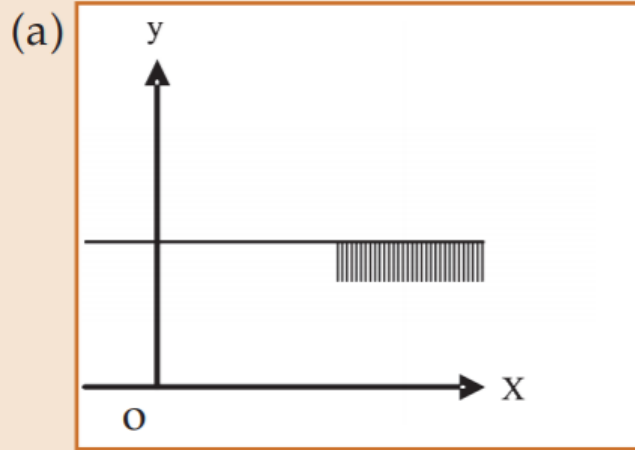
(a)

(b)

(c)

(d) none of these

37
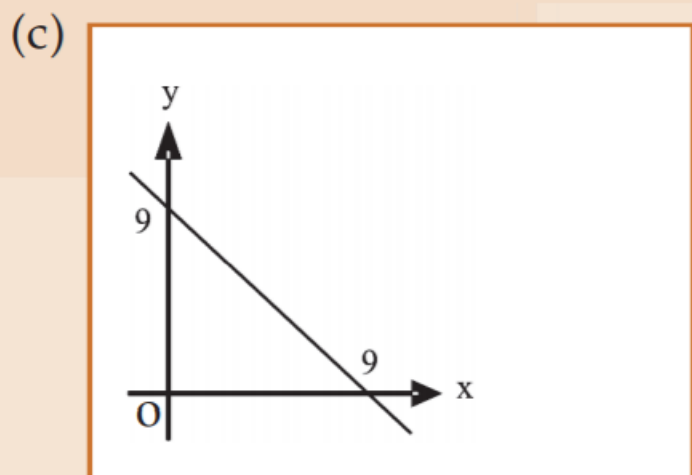
(vi) The graph to express the inequality $5x + 3y \geq 30$ is

(a)

(b)

(c)

(d) none of these

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(vii) The graph to express the inequality $y \leq \left(\frac{1}{2}\right) x$ is indicated by

(a)

(b)

(c)

(d)

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(viii)
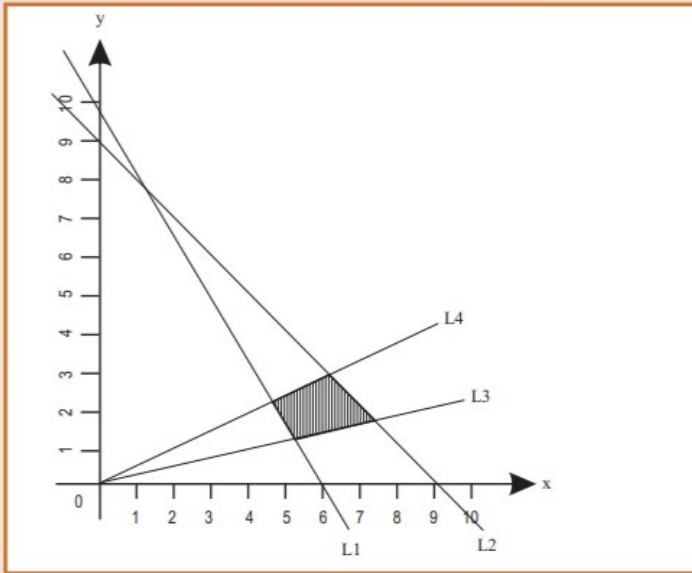
L1 : 5x + 3y = 30   L2 : x+y = 9   L3 : y = x/3   L4 : y = x/2

The common region (shaded part) shown in the diagram refers to

(a) 5x + 3y ≤ 30   (b) 5x + 3y ≥ 30   (c) 5x + 3y ≥ 30 (d) 5x + 3y > 30 (e) None of these

     x + y ≤ 9   x + y ≤ 9   x + y ≥ 9   x + y < 9

     y ≤ 1/5 x   y ≥ x/3   y ≤ x/3   y ≥ 9

     y ≤ x/2   y ≤ x/2   y ≥ x/2   y ≤ x/2

                  x ≥ 0, y≥ 0   x ≥ 0, y≥ 0   x ≥ 0, y≥ 0

8. The sum required to earn a monthly interest of ₹ 1,200 at 18% p.a. SI is

(a) ₹ 50,000   (b) ₹ 60,000   (c) ₹ 80,000   (d) none of these

9. A sum of money amount to ₹ 6,200 in 2 years and ₹ 7,400 in 3 years. The principal and rate of interest are

(a) ₹ 3,800, 31.57% (b) ₹ 3,000, 20% (c) ₹ 3,500, 15% (d) none of these

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10. A sum of money doubles itself in 10 years. The number of years it would triple itself is

(a) 25 years.   (b) 15 years.   (c) 20 years   (d) none of these

43

4. A machine is depreciated at the rate of 20% on reducing balance. The original cost of the machine was ₹ 1,00,000 and its ultimate scrap value was ₹ 30,000. The effective life of the machine is

(a) 4.5 years (appx.)

(b) 5.4 years (appx.)

(c) 5 years (appx.)

(d) none of these

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6. The population of a town increases every year by 2% of the population at the beginning of that year. The number of years by which the total increase of population be 40% is

(a) 7 years (b) 10 years (c) 17 years (app) (d) none of these

45

7. The difference between C.I and S.I on a certain sum of money invested for 3 years at 6% p.a is ₹ 110.16. The principle is

(a) ₹ 3,000 (b) ₹ 3,700 (c) ₹ 12,000 (d) ₹ 10,000

9. The effective rate of interest corresponding a nominal rate of 7% p.a convertible quarterly is

(a) 7%   (b) 7.5%   (c) 5%   (d) 7.18%

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10. The C.I on ₹ 16000 for 1 ½ years at 10% p.a payable half -yearly is

   (a) ₹ 2,222   (b) ₹ 2,522   (c) ₹ 2,500   (d) none of these

13. The annual birth and death rates per 1,000 are 39.4 and 19.4 respectively. The number of years in which the population will be doubled assuming there is no immigration or emigration is

(a) 35 years.   (b) 30 years.   (c) 25 years   (d) none of these

49

3. A loan of ₹ 10,000 is to be paid back in 30 equal instalments. The amount of each installment to cover the principal and at 4% p.a CI is

(a) ₹ 587.87   (b) ₹ 587   (c) ₹ 578.30   (d) none of these

50

8. A company borrows ₹ 10,000 on condition to repay it with compound interest at 5% p.a by annual installments of ₹ 1000 each. The number of years by which the debt will be clear is

(a) 14.2 years   (b) 10 years   (c) 12 years   (d) none of these

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11. A person invests ₹ 500 at the end of each year with a bank which pays interest at 10% p. a C.I. annually. The amount standing to his credit one year after he has made his yearly investment for the 12th time is.

(a) ₹ 11,761.36   (b) ₹ 10,000   (c) ₹ 12,000   (d) none of these

8. A man purchased a house valued at ₹ 3,00,000. He paid ₹ 2,00,000 at the time of purchase and agreed to pay the balance with interest at 12% per annum compounded half yearly in 20 equal half yearly instalments. If the first instalment is paid after six months from the date of purchase then the amount of each instalment is

[Given log 10.6 = 1.0253 and log 31.19 = 1.494]

(a) ₹ 8,718.45　　(b) ₹ 8,769.21　　(c) ₹ 7,893.13　　(d) none of these.

5. The time by which a sum of money would treble it self at 8% p. a C. I is

   (a) 14.28 years   (b) 14 years   (c) 12 years   (d) none of these

12. A sinking fund is created for redeming debentures worth ₹ 5 lakhs at the end of 25 years. How much provision needs to be made out of profits each year provided sinking fund investments can earn interest at 4% p.a.?

(a) 12,006   (b) 12,040   (c) 12,039   (d) 12,035

55

15. Appu retires at 60 years receiving a pension of 14,400 a year paid in half-yearly installments for rest of his life after reckoning his life expectation to be 13 years and that interest at 4% p.a. is payable half-yearly. What single sum is equivalent to his pension?

(a) 1,45,000   (b) 1,44,900   (c) 1,44,800   (d) 1,44,700

56

7. In $^nP_r = n\,(n-1)\,(n-2)\,\ldots\ldots\ldots\ldots\ldots(n-r+1)$, the number of factors is
   a) n
   b) r–1
   c) n–r
   d) r

57

14. The number of ways the letters of the word `COMPUTER' can be rearranged is
    a) 40,320
    b) 40,319
    c) 40,318
    d) none of these

58

15. The number of arrangements of the letters in the word `FAILURE', so that vowels are always coming together is

a) 576
b) 575
c) 570
d) none of these

59

16. 10 examination papers are arranged in such a way that the best and worst papers never come together. The number of arrangements is

a) 9⌊8
b) ⌊10
c) 8⌊9
d) none of these

20 The number of 4 digit numbers greater than 5,000 can be formed out of the digits 3,4,5,6 and 7(No. digit is repeated). The number of such is
a) 72   b) 27   c) 70   d)   none of these

61

4. 3 ladies and 3 gents can be seated at a round table so that any two and only two of the ladies sit together. The number of ways is

(a) 70   (b) 27   (c) 72   (d) none of these

62

6. The number of arrangements of 10 different things taken 4 at a time in which one particular thing always occurs is

(a) 2015   (b) 2016   (c) 2014   (d) none of these

7. The number of permutations of 10 different things taken 4 at a time in which one particular thing never occurs is

(a) 3,020   (b) 3,025   (c) 3,024   (d) none of these

63

12. The value of $\sum\limits_{r=1}^{10} r \cdot {}^{r}P_{r}$ is

(a) ${}^{11}P_{11}$ (b) ${}^{11}P_{11} - 1$ (c) ${}^{11}P_{11} + 1$ (d) none of these

64

18. The number of arrangements in which the letters of the word `MONDAY' be arranged so that the words thus formed begin with M and do not end with N is
    (a) 720   (b) 120   (c) 96   (d) none of these

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7. If $^nc_{10} = {}^nc_{14}$, then $^{25}c_n$ is

(a) 24   (b) 25   (c) 1   (d) none of these

11. There are 12 points in a plane of which 5 are collinear. The number of triangles is
   (a) 200 (b) 211 (c) 210 (d) none of these

67

13. At an election there are 5 candidates and 3 members are to be elected. A voter is entitled to vote for any number of candidates not greater than the number to be elected. The number of ways a voter choose to vote is

(a) 20   (b) 22   (c) 25   (d) none of these

68

16. The number of ways in which 12 students can be equally divided into three groups is
    (a) 5775   (b) 7575   (c) 7755   (d) none of these

17. The number of ways in which 15 mangoes can be equally divided among 3 students is

    (a) $\lfloor 15 / \lfloor (5)^4$ (b) $\lfloor 15 / \lfloor (5)^3$ (c) $\lfloor 15 / \lfloor (5)^2$ (d) none of these

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19. A committee of 3 ladies and 4 gents is to be formed out of 8 ladies and 7 gents. Mrs. X refuses to serve in a committee in which Mr. Y is a member. The number of such committees is

(a) 1530
(b) 1500
(c) 1520
(d) 1540

21. The Supreme Court has given a 6 to 3 decision upholding a lower court; the number of ways it can give a majority decision reversing the lower court is
(a) 256   (b) 276   (c) 245   (d) 226.

71

5   A question paper contains 6 questions, each having an alternative.

The number of ways an examine can answer one or more questions is

(a) 720   (b) 728   (c) 729   (d) none of these

72

12. The number of different factors the number 75,600 has is
   (a) 120   (b) 121   (c) 119   (d) none of these

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7. The value of x such that $8x + 4$, $6x - 2$, $2x + 7$ will form an AP is
   (a) 15 (b) 2 (c) 15/2 (d) none of the these

10. The nth term of the series whose sum to n terms is $5n^2 + 2n$ is
    (a) $3n - 10$ (b) $10n - 2$ (c) $10n - 3$ (d) none of these

75

14. The sum of the series 9, 5, 1,…. to 100 terms is
(a) −18,900
(b) 18,900
(c) 19,900
(d) none of these

76

17. The sum of n terms of an AP is $3n^2 + 5n$. The series is
   (a) 8, 14, 20, 26
   (b) 8, 22, 42, 68
   (c) 22, 68, 114, ...
   (d) none of these

22. The first term of an A.P is 14 and the sums of the first five terms and the first ten terms are equal in magnitude but opposite in sign. The 3rd term of the AP is

(a) $6\dfrac{4}{11}$ (b) 6   (c) 4/11   (d) none of these

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24. The first and the last term of an AP are –4 and 146. The sum of the terms is 7171. The number of terms is
(a) 101　　　　　　　(b) 100　　　　　　　(c) 99　　　　　　　(d) none of these

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7. The last term of the series x^2, x, 1, …. to 31 terms is

(a) x^{28}
(b) $1/x$
(c) $1/x^{28}$
(d) none of these

80

10. The sum of the series $\dfrac{1}{\sqrt{3}}+1+\dfrac{3}{\sqrt{3}}+ \ldots\ldots$ to 18 terms is

(a) $9841 \dfrac{(1+\sqrt{3})}{\sqrt{3}}$

(b) 9841

(c) $\dfrac{9841}{\sqrt{3}}$

(d) none of these

14. If you save 1 paise today, 2 paise the next day 4 paise the succeeding day and so on, then your total savings in two weeks will be
(a) ₹ 163   (b) ₹ 183   (c) ₹ 163.83   (d) none of these

15. Sum of n terms of the series 4 + 44 + 444 + … is

(a) $4/9 \{ 10/9 (10^n - 1) - n \}$ (b) $10/9 (10^n - 1) - n$

(c) $4/9 (10^n - 1) - n$ (d) none of these

83

23. The number of terms to be taken so that $1 + 2 + 4 + 8 +$ will be 8191 is
   (a) 10　　　　　　　　　(b) 13　　　　　　　　　(c) 12　　　　　　　　　(d) none of these

84

17. The sum of the first 20 terms of a G. P is 244 times the sum of its first 10 terms. The common ratio is

   (a) $\pm\sqrt{3}$

   (b) ± 3

   (c) $\sqrt{3}$

   (d) none of these

5. If p, q and r are in A.P. and x, y, z are in G.P. then $x^{q-r} \cdot y^{r-p} \cdot z^{p-q}$ is equal to
   (a) 0   (b) −1   (c) 1   (d) none of these

86

8. Given x, y, z are in G.P. and $x^p = y^q = z^\sigma$, then $1/p$, $1/q$, $1/\sigma$ are in

(a) A.P. (b) G.P. (c) Both A.P. and G.P. (d) none of these

87

23. The sum of all natural numbers between 500 and 1000 which are divisible by 13, is
    (a) 28,405   (b) 24,805   (c) 28,540   (d) none of these

28. A person saved ₹ 16,500 in ten years. In each year after the first year he saved ₹ 100 more than he did in the preceding year. The amount of money he saved in the 1st year was
    (a) ₹ 1000
    (b) ₹ 1500
    (c) ₹ 1200
    (d) none of these

89

15. If R is the set of positive rational number and E is the set of real numbers then

(a) $R \subseteq E$ (b) $R \subset E$ (c) $E \subset R$ (d) none of these

90

17. If I is the set of isosceles triangles and E is the set of equilateral triangles, then

(a) $I \subset E$ (b) $E \subset I$ (c) $E = I$ (d) none of these

91

21. A∪A is equal to

    (a) A (b) E (c) φ (d) none of these

22. A∩A is equal to

    (a) φ (b) A (c) E (d) none of these

32. If A∆ B = (A–B)∪(B–A) and A = {1, 2, 3, 4}, B = {3,5,7} than A∆B is

(a) {1, 2, 4, 5, 7}   (b) {3}   (c) {1, 2, 3, 4, 5, 7}   (d) none of these

93

12. If $f(x) = 1/1-x$ and $g(x) = (x-1)/x$, than $fog(x)$ is

(a) x   (b) 1/x   (c) −x   (d) none of these

13. If $f(x) = 1/1-x$ and $g(x) = (x-1)/x$, then $g\ of(x)$ is

(a) x−1   (b) x   (c) 1/x   (d) none of these

94

15. The range of the function $f(x) = \log_{10}(1 + x)$ for the domain of real values of x when $0 \le x \le 9$ is

(a) [0, 1] (b) [0, 1, 2] (c) {0, -1} (d) none of these

95

19. The Inverse h^{-1} when $h(x) = \log_{10}x$ is

(a) $\log_{10}x$ (b) 10^x (c) $\log_{10}(1/x)$ (d) none of these

96

1. "Is smaller than" over the set of eggs in a box is

   (a) Transitive (T)   (b) Symmetric (S)   (c) Reflexive (R)   (d) Equivalence (E)

2. "Is equal to" over the set of all rational numbers is

   (a) (T)   (b) (S)   (c) (R)   (d) E

   [By using using R = Reflexive; T = Transitive, S = Symmetric and E = Equivalence from Q.No. 2 to 8]

3. "has the same father as" …… over the set of children

   (a) R   (b) S   (c) T   (d) E

4. "is perpendicular to" over the set of straight lines in a given plane is

   (a) R   (b) S   (c) T   (d) E

5. "is the reciprocal of" …….. over the set of non-zero real numbers is

   (a) S   (b) R   (c) T   (d) none of these

97

10. In a group of 20 children, 8 drink tea but not coffee and 13 like tea. The number of children drinking coffee but not tea is

(a) 6   (b) 7   (c) 1   (d) none of these

25. If $f(x) = 1/1–x$, then $f^{-1}(x)$ is

(a) $1–x$ (b) $(x–1)/x$ (c) $x/(x–1)$ (d) none of these

19. At a certain conference of 100 people there are 29 Indian women and 23 Indian men. Out of these Indian people 4 are doctors and 24 are either men or doctors. There are no foreign doctors. The number of women doctors attending the conference is

(a) 2   (b) 4   (c) 1   (d) none of these

100