

# MATHS

# **BOOKS - PEARSON IIT JEE FOUNDATION**

# **EQUATIONS AND THEIR APPLICATIONS**

## **Example**

1. If 3x + 20 = 65, then find the value of x



**2.** If 5x-8=3x+22, then find the value of x

**3.** Solve for 
$$m \colon rac{m-3}{2} + rac{m-2}{3} = -13$$



**4.** The sum of the digits of a two-digit number is 9. If 27 is subtracted from the number, then the digits interchange their places. Find the number



5. Ram and Rahim have Rs 60,000 together. If Ram has Rs 8000

more than Rahim, then find how much money Ram has

6. Sixteen years hence, a man's age will be 9 times his age 16

years ago. Find his age 5 years hence



**7.** In a bag, there are 50 paise coins, Rs 1 coins, and Rs 2 coins. The total value of these coins is Rs 30. The number of Rs 2 coins is half the number of Rs 1 coins, which is half the number of 50 paise coins. Find the number of Rs 1 coins.

A. 20

**B**. 16

**C**. 15

 $\mathsf{D}.\,10$ 

Answer: D



8. The cost of three chairs and four tables is Rs 28,00. If the cost

of each chair is Rs 600, then find the cost of each table (in Rs)

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9. Solve the following inequations:

(a)  $x+5 < 7, x \in R$ 

(b)  $4x-3\geq 17, x\in Z$ 

(c)  $3x-2 < 1, x \in N$ 

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10. Solve: 
$$rac{18-2m}{5}+rac{4m+3}{7}\geq rac{m}{5}+rac{8}{7}$$

11. Represent the following inequations on number line

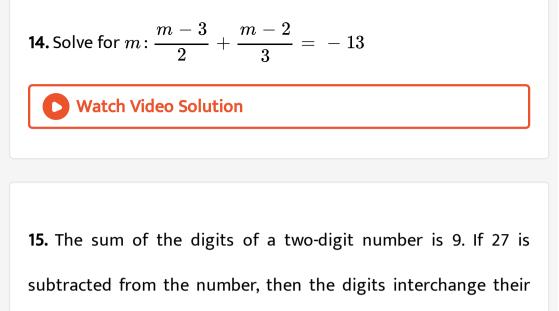
- (a)  $x \leq 3$
- (b)  $y \geq -1$
- (c) z<~-4



12. If 3x + 20 = 65, then find the value of x

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13. If 5x - 8 = 3x + 22, then find the value of x



places. Find the number

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16. Ram and Rahim have Rs 60,000 together. If Ram has Rs 8000

more than Rahim, then find how much money Ram has



**17.** Sixteen years hence, a man's age will be 9 times his age 16 years ago. Find his age 5 years hence



**18.** In a bag, there are 50 paise coins, Rs 1 coins, and Rs 2 coins. The total value of these coins is Rs 30. The number of Rs 2 coins is half the number of Rs 1 coins, which is half the number of 50 paise coins. Find thenumber of Rs1 coins

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19. The cost of three chairs and four tables is Rs 28,00. If the cost

of each chair is Rs 600, then find the cost of each table (in Rs)



**20.** Solve the following inequations:

(a)  $x+5 < 7, x \in R$ (b)  $4x-3 \ge 17, x \in Z$ (c)  $3x-2 < 1, x \in N$ Watch Video Solution

21. Solve the following inequations:

- (a)  $x+5 < 7, x \in R$
- (b)  $4x-3\geq 17, x\in Z$
- (c)  $3x-2 < 1, x \in N$



22. Solve the inequation:

 $3x-22<2, x\in N$ 

23. Solve: 
$$rac{18-2m}{5}+rac{4m+3}{7}\geq rac{m}{5}+rac{8}{7}$$

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24. Represent the following inequations on number line

- (a)  $x \leq 3$
- (b)  $y \geq -1$
- (c) z<~-4

25. Represent the following inequations on number line

- (a)  $x \leq 3$
- (b)  $y \geq -1$
- (c) z<~-4

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26. Represent the following inequations on number line

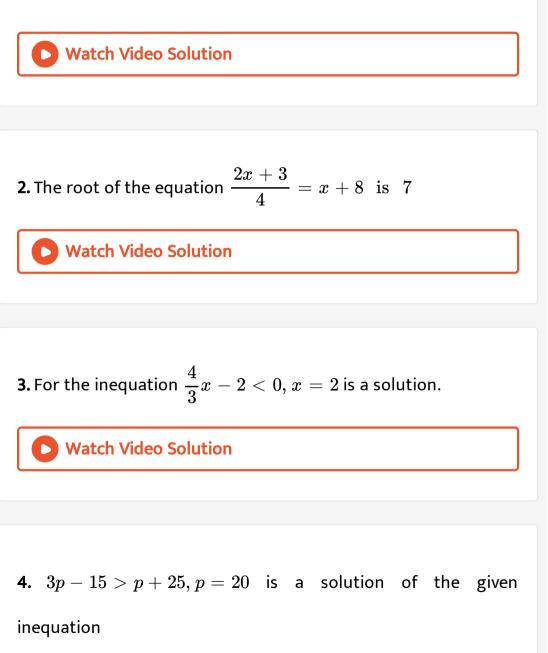
- (a)  $x \leq 3$
- (b)  $y \geq -1$
- (c) z< -4

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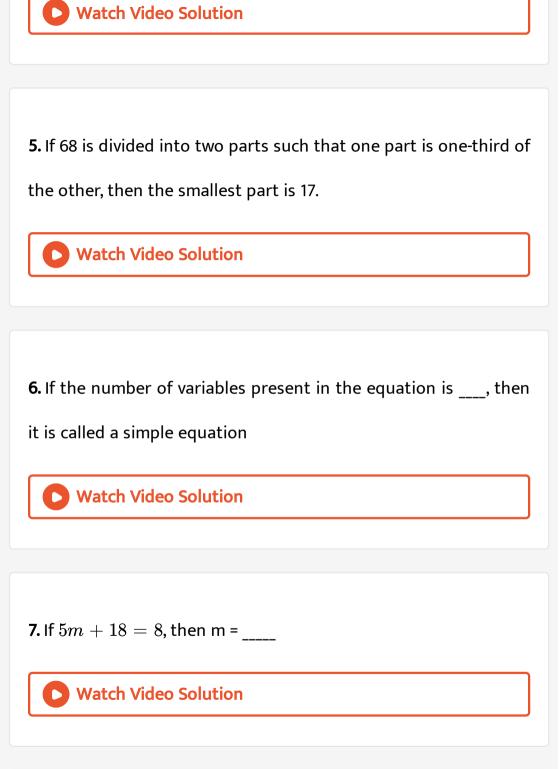
Very Short Answer Type Question

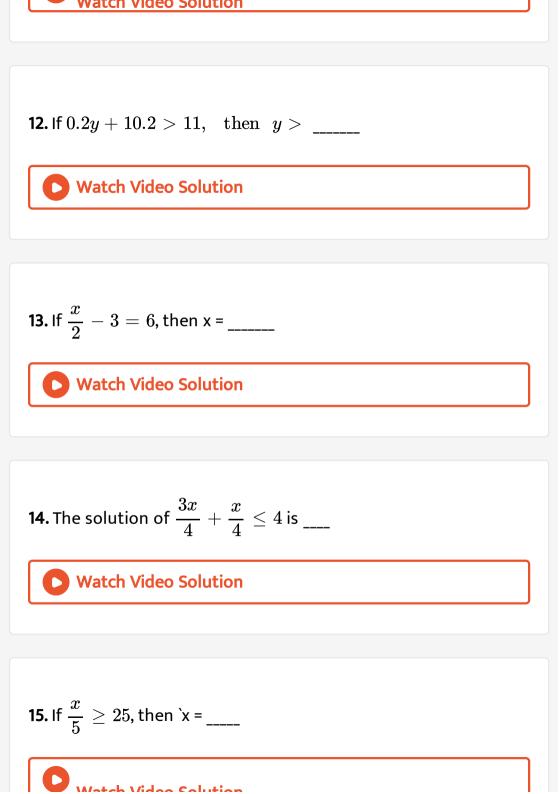
1. An open sentence containing the sign is equal to is called an

equation



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16. If 2x - 3 = 13, then x = \_\_\_\_\_

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17. If 
$$x + 3\frac{1}{2} = 5$$
, then x = \_\_\_\_\_

Watch Video Solution

18. If 
$$rac{x}{5}-9=1$$
, then x = \_\_\_\_

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19. If 
$$rac{x}{2}+1=3$$
, then x = \_\_\_\_

**20.** Solve for 
$$z \colon rac{2z}{5} + 6 = z - 3$$

A. 12

- B. 15
- C. 11
- D. 10

Answer: B

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**21.** Solve for m: 3(4m+5) - 4(3-2m) = 13

A. 1/2

B. 2

C.1/4

D. 1

Answer: A

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**22.** Solve for x : 3x + 5 > 7

A. x>3/2

 $\mathsf{B.}\, x>2/3$ 

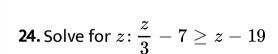
 $\mathsf{C.}\,x<3/2$ 

D. x < 2/3

Answer: B

23. Solve for 
$$y: rac{4y}{3} - 5 < 10$$
  
A.  $y < 27/24$   
B.  $t < 33/4$   
C.  $y < 45/4$   
D.  $y < 59/4$ 

## Answer: C



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A.  $z \leq 12$ 

B.  $z \leq 15$ 

C.  $z \leq 18$ 

D.  $z \leq 21$ 

Answer: C

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**25.** Solve for x : 2x + 3 = 9

A. 4

B. 3

C. 2

D. 1

Answer: B



<b>26.</b> Solve for $y: \frac{y}{3} - 7 =$	- 4
A. 15	
B. 12	
C. 6	
D. 9	

Answer: D



**27.** Solve for 
$$x: 12x - 7 = 7x - 13$$

 $\mathsf{A.}-1.2$ 

 $\mathsf{B.}-1.6$ 

C. - 1.8

 $\mathsf{D.}-1.4$ 

Answer: A

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**28.** Solve for m : 1.2m + 2.6 = 5

A. 4

B. 3

C. 2

D. 1

Answer: C

Short Answer Type Questions

1. Divide Rs 98 into two such that one part of 6 times to the

other part



**2.** One-third of a number is equal to 24, then find the value of  $1\frac{1}{2}$ 

times of the number



3. The sum of three consectuve integers is 24. Find the smallest

number



**4.** Solve, 
$$rac{x}{3}+rac{x}{6}+rac{x}{9}=11$$

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5. Solve : 
$$0.5y + 0.75y = 125$$

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**6.** Solve : 2.5t + 7.3t = 21.6 - t



**7.** Equal parts of a flag pole are painted with saffron, white, and green colours. If one-third of the portion painted green is 2 m

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**8.** A person covered 5/8 of his journey and he has to walk 240 m more to complete his journey. Find the total distance of the journey

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**9.** A boy has given 7/12 of his marbles to his friend and is left with only 20 marbles. Find how many marbles he had with him initially



**10.** A number is multiplied by 5 and 25 is subtracted from the product. The result is equal to four times the number itself. Find the number

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11. One-fouth of a certain number exceeds its one-seventh by 3.

find the number

12. Solve : 
$$\frac{5x-2}{3} + \frac{4x+3}{2} = \frac{3x+19}{2}$$

13. Solve : 
$$0.3(3y-4.5) + 2.9(5.5-5y) = 1$$



14. Solve : 
$$\frac{9m+4}{5} - \frac{27m+1}{8} - \frac{1}{2} = 0$$

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15. Solve : 
$$2m+5>9-4m, m\in Q$$

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**16.** Solve : 
$$\frac{z}{2} - \frac{z}{3} - \frac{z}{4} = -1$$

17. Solve : 
$$\displaystyle rac{y+2}{3} + \displaystyle rac{y+3}{2} = y+1$$

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18. Solve : 
$$rac{2n+3}{6n-5}=1$$

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**19.** Solve : 
$$2(k+3) + 3(k-4) = 24$$

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**20.** One-fifth of a number is 5 more than one-tenth of the number. Find the number

**21.** Twice a number is added to half the number, and result is 250.

Find one-tenth of the number

<b>Watch Video Solution</b>
<b>22.</b> Solve for $x, 8x+4 \leq 20$ in the set of natural numbers
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Essay Type Question

**1.** Five years ago, the age of a person was half of his present age.

How old is he now?



**2.** The present age of A is twice that of B. The sum of their present ages is 33 years. Find the present age of A (in years)



**3.** In a two-digit number, the units digit is twice the ten's digit and the difference between the number and the number formed by reversing the digits is 18. Find the original number

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**4.** Thirty years ago, the age of a man was three-fifth of his present age. Find the present age (in years)



**5.** The present age of Shobha is equal to one-fifth of her mother Sudha's age. Twenty -five years later, the age of Shobha will be 4 years less than half the age of her mother Sudha. Find their present ages.

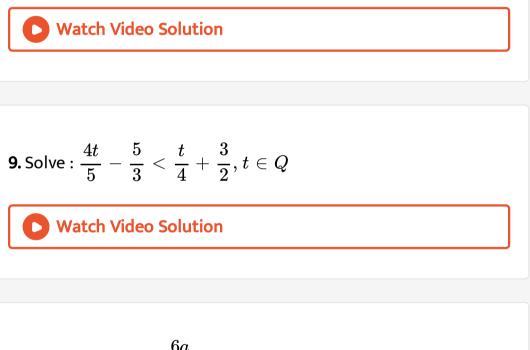
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**6.** In a two-digit number, the ten digit is one more than twice the units digit. The sum of the digits is 36 less than the number formed by reversing the digits. Find the product of the digits

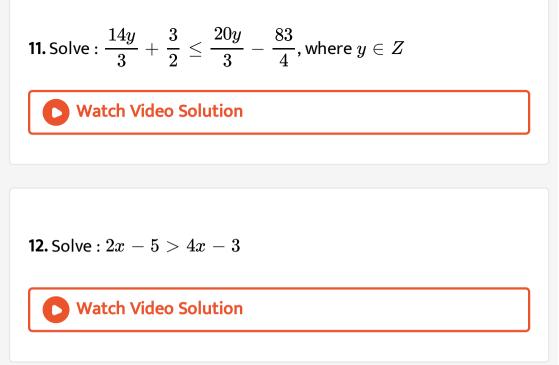


**7.** A man's age 15 years hence would be two times his age six years ago. Find his present age

**8.** In a two-digit number, the sum of the digit is 5 more than the units digit. The difference between the original number and the sum of digits is 10 more than the number formed by reversing the digits. Then find the difference between the digits.



10. Solve : 
$$8a-7 < rac{6a}{5} + 27, a \in Q$$



**13.** In a two-digit number, the sum of the digits is 9. If 9 is subtracted from the number, then the digits get reversed. Find the product of the digits



**14.** A purse contains a certain number of coins of denominations Rs 1 and 25 paise. The total value of the coins (in Rs) is 6 less than the total number of coins. Find the number of 25 paise coins

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**15.** Rs x is divided among Mr Bilhari, Mr Narahari, and Mr Murahari. The share of Bilhari is one-fourth of the total money, the share of Murahari is one-third of the remaining money and the share of Narahari is Rs 1200. Find x





1. The root of the equation  $rac{3}{4}x+5=8$  is \_\_\_\_\_

B. 4 C. 2

D. 1

A. 5

#### Answer: B



2. Which of the following is the solution of the equation 5p-10=5 ?

A. p = 5

 $\mathsf{B.}\, p=4$ 

 $\mathsf{C}.\, p=2$ 

D. p = 3

Answer: D



**3.** If 
$$\frac{x}{2} + \frac{x}{3} = 5$$
, then x = \_\_\_\_  
A. 2  
B. 3  
C. 4  
D. 6

Answer: D

**4.** If x = 10, then 0.2x + 0.2 = \_\_\_\_\_

A. 12.2

B. 10.2

C.2.2

D. 22

## Answer: C



5. If 
$$\displaystyle rac{0.2}{x} + 0.1 \geq 2.1$$
, then  $x \leq$  \_\_\_\_\_

A. 1

 $\mathsf{B.}\,0.1$ 

C. 2

 $\mathsf{D}.\,0.2$ 

Answer: B



6. If 
$$\frac{x}{12} + \frac{1}{2} = x - 5$$
, then x = \_\_\_\_  
A. 2  
B. 4  
C. 8

D. 6

Answer: D



7. If 1.7y + 2.3y = 2, then y = \_\_\_\_\_

A. 1/4

 $\mathsf{B.}\,1\,/\,2$ 

C. 8

D. 6

### Answer: B



**8.** If 
$$5\left(rac{x}{6}+rac{1}{2}
ight)=5x-10$$
, then x = \_\_\_\_

A. 3

B. 1/3

C. 6

D.1/6

Answer: A

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9. If 
$$\displaystyle rac{1}{x} + \displaystyle rac{3}{x} = \displaystyle rac{11}{3}$$
 , then x = \_\_\_\_

A. 11/3

 $\mathsf{B.}\,2\,/\,3$ 

C. 12/11

D. 3/11

Answer: C

10. If  $9.1x + 3x + 1.9x \leq 42$ , the  $x \leq$  \_\_\_\_\_

A. 1

- B. 3
- C. 5
- D. 4

#### Answer: B



11. If  $5z+1.5(0.5z+10)\geq 590$ , then  $z\geq$ 

A. 15

B. 100

C. 150

D. 200

Answer: B

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12. If 8.3x - 9.8 = x + 26.7, then x = \_\_\_\_

A. 2

B. 3

C. 4

D. 5

Answer: D

13. If $3(a-2)-2(a+9)=1$ , then a =	
A. 20	
В. 22	
C. 25	
D. 27	

# Answer: C



14. If 
$$2(p-5) = rac{p}{2} + 5$$
, then p = \_\_\_\_\_

## A. 8

B. 9

C. 10

D. 11

Answer: C

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**15.** Solve for a: 3a - 4 = -16

 $\mathsf{A.}-3$ 

 $\mathsf{B.}-4$ 

C.-5

 $\mathsf{D.}\,4$ 

Answer: B



**16.** Solve for 
$$b: \frac{b}{5} - 5 = 7$$
  
A. 30  
B. 60  
C. 90  
D. 120

## Answer: B



**17.** Solve for 
$$x: 5x - 6 = 8x - 4$$

A. -1/3

B. -2/3

C.1/3

 $\mathsf{D.}\,2\,/\,3$ 

Answer: B

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**18.** Solve for k : 1.5k - 3.7 = 0.8

A. 7

B. 6

C. 5

D. 3

Answer: D

**19.** Solve : 
$$\frac{3x+4}{7} - \frac{x+5}{14} = \frac{x}{28} + \frac{x+1}{14}$$
  
The following steps are involved in solving the above problem.  
Arrange them in sequential order  
(A)  $5x + 3 = \frac{3x+2}{2} \Rightarrow 10x + 6 = 3x + 2$   
(B)  $\Rightarrow 7x = -4$   
(C) Given  $\frac{3x+4}{7} - \frac{x+5}{14} = \frac{x}{28} + \frac{x+1}{14}$   
 $\Rightarrow \frac{6x+8-x-5}{14} = \frac{x+2x+2}{28}$   
(D)  $\Rightarrow x = -\frac{4}{7}$ 

A. ABCD

B. CADB

C. CABD

D. BCAD

## Answer: C



**20.** Two-third of a certain number exceeds one-third of the number by 10. Find the number. The following steps are involved in solving the above problem. Arange them in sequential order

(A) 
$$\frac{2x}{3} - \frac{x}{3} = 10$$
 (given)  
(B)  $\frac{2x - x}{3} = 10 \Rightarrow \frac{x}{3} = 10$   
(C)  $\Rightarrow x = 30$ 

- (D) Let the number be x
  - A. DACB
  - B. BDAC
  - C. ADBC

D. DABC

### Answer: D



21. Solve : 
$$rac{7x+3}{4} + rac{9x-5}{8} = rac{16x-3}{16}$$

The following steps are involved in solving the above problem.

Arrange them in sequential order

(A) 
$$x = \frac{-5}{30} = \frac{-1}{6}$$
  
(B)  
 $\frac{7x+3}{4} + \frac{9x-5}{8} = \frac{16x-3}{16} \Rightarrow \frac{14x+6+9x-5}{8} = \frac{16x-3}{16}$   
(C)  $\frac{23x+1}{8} = \frac{16x-3}{16} \Rightarrow 23x+1 = \frac{16x-3}{2}$   
(D)  $46x+2 = 16x-3 \Rightarrow 30x = -5$ 

## A. BCDA

B. CBDA

C. BCAD

D. BDCA

Answer: A



**22.** One-third of a certain number exceeds  $\frac{1}{9}th$  fo the number by

20. Find the number.

The following steps are involved in solving the above problem. Arrange them in sequential order

(A) Let the number x

(B) 
$$\frac{2x}{9} = 20 \Rightarrow \frac{x}{9} = 10 \Rightarrow x = 90$$
  
(C) Given  $\frac{x}{3} - \frac{x}{9} = 20$   
(D)  $\frac{3x - x}{9} = 20$ 

### A. ADCB

B. ACDB

### C. DACB

## D. CADB

## Answer: B



23. Match the following Column A to Column B Column B Column A (a)  $\gamma < \frac{36}{5}$ If  $\frac{17}{3}x + 20 = 71$ , then x =(b) 9 The root of the equation  $\frac{4}{5}x + 9 = 2x - 3$  is \_\_\_\_\_. (c)  $\gamma > \frac{36}{5}$ The solution set of  $\frac{\gamma}{6} + \frac{4}{5} <$ 2 is (d) 10 If 69 is divided into two parts such that one part is twice the other, then the greater part is \_ (e) 46 (f) 23

# 24. Match the following Column A to Column B

Column A	Column B
If $\frac{15}{2}y + 10 = -5$ , then $y = $	(a) $x > 5$
The root of the equation $\frac{7}{2}x + 2 = 14 + 3x$ is	(b) 64
The solution set $\frac{x}{5} + 4 > 5$ of is	(c) -2
If 96 is divided into two parts such that one part is twice the other, then the greater part is	(d) 2
	(e) 24
	(e) 24 (f) <i>x</i> <5

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# Level 2

1. If 
$$\frac{9x-5}{7} + \frac{6-3x}{2} = 2$$
, then x = \_\_\_\_  
A. `2//3  
B.  $3/4$ 

C.5/4

 $\mathsf{D.}\,4/3$ 

Answer: D

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**2.** If 
$$3y+1rac{1}{2}+6(4-5y)=12$$
, then y = \_\_\_\_

A. 1/6

B. 11

 $\mathsf{C}.\,1/2$ 

D. 7

Answer: C

3. If 
$$\frac{z+5}{7} + \frac{4(z-11)}{9} + 3 = 0$$
, then z = \_\_\_\_\_  
A. 1  
B. 2  
C. -4  
D. 5

## Answer: B

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4. If 
$$\frac{0.3(3x-4)}{5} + \frac{0.4x+3.6}{2} = 3.5x$$
 then x = \_\_\_\_

 $\mathsf{B}.\,0.3$ 

 $C.\,0.5$ 

 $\mathsf{D}.\,0.2$ 

Answer: C

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5. If 
$$rac{7t+13}{15}+7iggl(rac{2t-1}{5}iggr)=6$$
, then the value of t is \_\_\_\_\_

A. 2

- B. 3
- C. 1

 $\mathsf{D.}-2$ 

Answer: a



6. Two-third of a number exceeds one-third of the number by 10.

Find the number

B. 20 C. 30 D. 40

A. 10

### Answer: c

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**7.** A number is doubled and half of the number is added to it. If 10 is substracted from the result, then we get a number which is one less than the original number. Find the original number

Answer: b

D. 8

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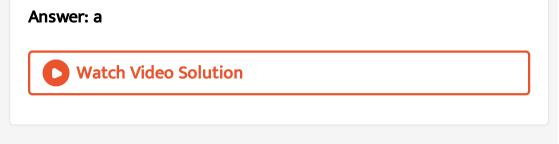
**8.** If a number is multiplied by 5 and 5 is added to it, then the result is equal to 50. Find the number

A. 9

B. 8

C. 7

D. 6



**9.** If seven times a number is added to one-fifth of itself, then fivesixth of the sum is equal to 30. Find the number

A. 5

B. 6

C. 15

D. 10

Answer: a

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**10.** If one-fouth, half, and one-third of a number are added to the number itself, then the result is equal to 25. Find the number

A. 10

- B. 11
- C. 12
- D. 14

Answer: c



11. Solve for 
$$x\!:\!rac{x}{5}+rac{x}{7}=12$$

A. 70

B. 140

C. 35

D. 105

Answer: c

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12. Solve for 
$$x \colon rac{3x-2}{5x+7} = rac{1}{12}$$

A. 
$$-4$$

B. 3

- C. 1
- $\mathsf{D.}-2$

Answer: c

**13.** Solve for y: 3(y-4) - 5(y+5) = -21

A. -4

- B.-7
- C.-3
- D.-8

### Answer: d

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**14.** Two-third of a number is 32 less than three-fifth of the number. Find the number

B. - 480

 $\mathsf{C.}-360$ 

D. 480

Answer: b



**15.** If one third of a number is subtracted from three times the number, then the result is 800, find the number.

A. 300

B.400

C. 200

D. 600

### Answer: a



**16.** Solve for  $t, 3t - 8 \leq -t$  in the set of whole numbers

A.0, 1, 2

B. 1, 2, 3

C.0, 1, 2, 3

D.1, 2, 3, 4

Answer: a

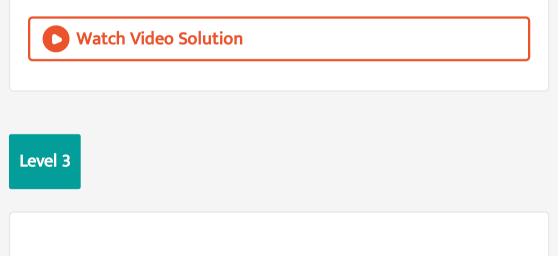


**17.** In a two-digit number, the tens digit is twice the units digit. If the sum of its digits is 9. Find the number

A. 63 B. 82 C. 72

D. 36

Answer: a



**1.** The present age of a man is seven times the present age of his

son. Two years ago, the age of the man was elevent times the

age of the son. Find the present age of the man (in years)

A. 35

B.26

C. 47

D. 45

Answer: a

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**2.** Th present age of A is thrice that of B. Five years from now, A's age will be 8 years more than twice B's age. Find the present age of B (in years)

A. 10

B. 13

C. 12

D. 15

Answer: b

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**3.** The sum of the present ages of Ram and Shyam is 75 years. Ten years ago, Ram's age was 4 times the age of Shyam. Find the difference between their present ages (in years)

A. 22

B. 23

C. 33

D. 30

## Answer: c

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**4.** A road divider of certain length is painted one-sixth yellow, three-fifth black, and the remaining 28m is painted white. Find the length of the divider

A. 100 m

B. 120 m

C. 150 m

D. 92 m

Answer: b

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**5.** Mr Sumanth spends two-fifth of his salary on house rent and one-fouth on food. After spending Rs 2000 on miscellaneous, if he could save an amount of Rs 5000, then find his monthly income (in Rs)

A. 20000

B. 25000

C. 15000

D. 16000

Answer: a



**6.** In a two-digit number, the units digit is 3 more than the ten's digit. The sum of the digits is 18 less than the original number.

## Find the product of the digits

B. 40 C. 10

A. 54

D. 28

## Answer: c

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**7.** A number is added to two-third of itself, 1 is subtracted from the sum and the result is divided by 12. If the final result is 12, then find the number.s

A. 20

B.87

C. 84

D. 74

Answer: b

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8. The present age of A is 4 years less than twice the present age

of B. B's present age is 6 years more than twice his age 15 years

ago. Find the difference of their ages

A. 30 years

B. 32 years

C. 20 years

D. 22 years

## Answer: c

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**9.** A mother said that, her age is one year less than thrice her dauther's age. The daughter is 9 years less than the difference between their present ages. Find the sum of their ages (in years)

A. 45

B.47

C. 39

D. 35

Answer: c



**10.** There are two numbers, the difference between them is equal to twice the smaller number. The sum of the two number is 68. Find the product of the two numbers

A. 868 B. 965

C. 814

D. 986

## Answer: a

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11. A student painted a circular region of certain area such that 4/7th of the area was pink, 1/10th area was green, and 2/7th

was yellow. The remaining area of  $6m^2$  was white. Find the area of the region which is painted pink (in sq. units)

A. 95 B. 140 C. 240

# Answer: d

D. 80



**12.** In a two-digit number, tens digit is a multiple of the units digit. The sum of the number and the number formed by reversing the digits is 132. Which of the folloiwng can be the product of the two digits ?

A. 16

B. 27

C. 35

D. 18

Answer: b



**13.** There are three house-hold articles. The cost of the first article is two-fifth the cost of the third article and the cost of the third article is twice the cost of second article. If the total cost of the three articles is Rs 228, then find the cost of the first article (in Rs)

B. 48

C. 50

D. 54

Answer: b



14. In an isoceles triangle, the difference between one of the equal sides and the unequal side (longest of the three) is 3/10 of the sum of the equal sides. If the perimeter of the triangle is 90 cm, then find the length of unequal side in centimetres

A. 40

B. 80

C. 25

Answer: a



15. Mr Anthony travelled 4/9 of a cetain distance by bus, 1/3 by car, and the remaining 6 km by scooter.

Find the distance by bus (in Km)

A. 12

B. 18

C. 9

D. 27

#### Answer: a

16. Which of the following is a solution of  $\frac{2x-5}{3} > \frac{3x+3}{4}$  ?

A. 
$$x = -5$$

B. 
$$x = -2$$

- C. x = -29
- D. x = -30

### Answer: d

Watch Video Solution

17. The unit digit of a two-digit number is 6. If 9 is added to the number, then the number obtained is 5/4th of the number itself. Find the sum of the digits

A	•	7	

B. 8

C. 9

D. 10

Answer: c



**18.** A purse contains a cetain number of coins fo denominations Re. 1 and 50 paise. The total value of the coins (in Rs) is 14 less than the total number of coins. Find the number of 50 paise coins

A. 12

B. 18

C. 22

D. 28

Answer: d

Watch Video Solution

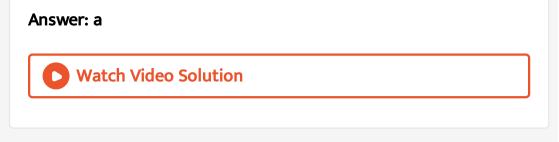
**19.** Rs x is divided among A, B and C. The share of A is two-fifth of the total money, the share of B is two-third of the remaining money, and the share of C is Rs 600. Find the value of x

A. 3000

B. 4000

C. 5000

D. 6000



20. Ten years ago, Mohan's age was 35 years less than twice his

present age. Find Mohan's present age (in years)

A. 15

B.20

C. 25

D. 10

Answer: c

**21.** Ram, Shyam, and Tarun have a total of Rs 600 with them. The amount with Ram is equal to half of the total amount with the others. Find the amount with Ram (in Rs)

A. 150

B. 300

C. 120

D. 200

## Answer: d

Watch Video Solution

22. The difference of the digits of a two-digit number is 8. The

sum of its digits can be \_\_\_\_

A. 8

B. 10

C. Either (a) or (b)

D. Neither (a) or (b)

Answer: c



**23.** Ramesh and Suresh have a total of Rs 200. If Ramesh gives Rs 40 to Suresh, then the amounts with both would get interchanged. Find the amount with Suresh (in Rs)

A. 70

B.60

C. 50

D. 80

Answer: d



Test Your Concepts Very Shory Answer Ype Questions

**1.** An open sentence containing the sign is equal to is called an equation

Watch Video Solution

**2.** The root of the equation 
$$rac{3x+10}{5}=x+4$$
 is \_\_\_\_

**3.** For the enequation  $rac{4}{3}x-2 < 0, x=2$  is a solution.

Watch Video Solution

4. 3p-15>p+25, p=20 is a solution of the given

inequation

Watch Video Solution

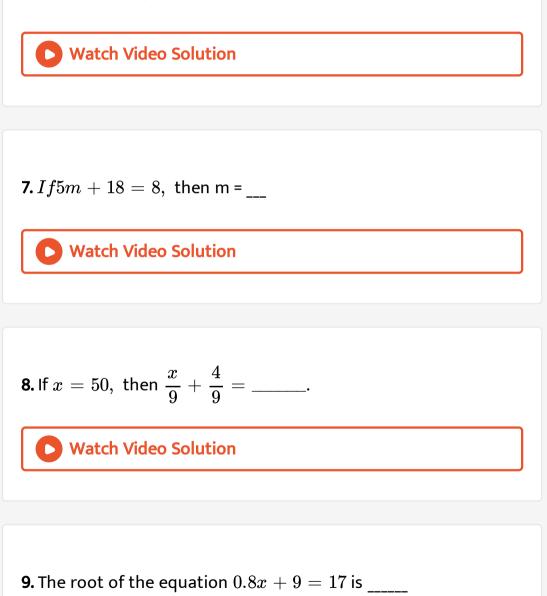
5. If 68 is divided into two parts such that one part is one-third of

the other, then the smallest part is 17.



6. If the number of variables present in the equation is \_\_\_\_, then

it is called a simple equation



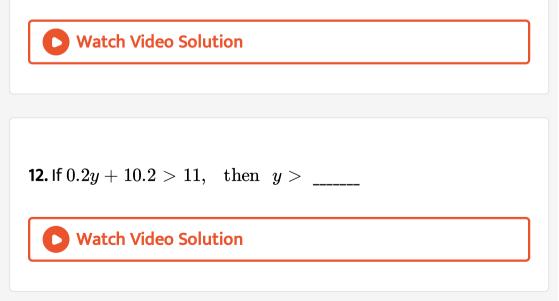
10. In a two-digit number if, p is the ten's digit and q is the units

digit, then the two-digit number is \_\_\_\_\_

Watch Video Solution	

11. If one-third of a number x is substracted from two-third of the

number x, then the result is 6. Then x = \_\_\_\_\_



13. If 
$$rac{x}{2}-2=6, ext{ then } x=$$
 \_\_\_\_\_

Watch Video Solution

14. The solution of 
$$rac{3x}{4}+rac{x}{4}\leq 4$$
 is \_\_\_\_\_

Watch Video Solution

15. If 
$$rac{x}{5} \geq 25$$
, then  $x = 125$  is a \_\_\_\_\_ of  $rac{x}{5} \geq 25$ 

Watch Video Solution

**16.** If 2x - 3 = 5x - 27, then x =\_\_\_\_\_.

17. If 
$$x + 3 \cdot \frac{1}{2} = 5$$
, then  $x =$ \_\_\_\_\_.

Watch Video Solution

**18.** If 
$$\frac{x}{5} - 9 = 1$$
, then  $x =$ \_\_\_\_\_.

Watch Video Solution

**19.** If 
$$\frac{x}{2} + 1 = 3$$
, then  $x =$  \_\_\_\_\_.

**20.** Solve for 
$$z: \frac{2z}{5} + 6 = z - 3$$

A. 
$$12$$

B. 15

C. 11

D. 10

Answer: A

Watch Video Solution

**21.** Solve for m : 3(4m+5) - 4(3-2m) = 13

A. 1/2

 $\mathsf{B.}\,2$ 

C.1/4

D. 1`

Answer: A



**22.** Solve for x: 3x + 5 > 7

A. x>3/2B. x>2/3C. x<3/2

D. x < 2/3

### Answer: B

**23.** Solve for 
$$y: \frac{4y}{3} - 5 < 10$$

A. 
$$\gamma < 27/4$$

B.  $\gamma < 33/4$ C.  $\gamma < 45/4$ D.  $\gamma < 59/4$ 

## Answer: C

Watch Video Solution

24. Solve for 
$$z : rac{z}{3} - 7 \ge z - 19$$
  
A.  $z \le 12$   
B.  $z \le 15$   
C.  $z \le 18$ 

D.  $z \leq 21$ 

## Answer: C

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**25.** Solve for x : 2x + 3 = 9

A. 4

B. 3

C. 2

D. 1

### Answer: B

**26.** Solve for : 
$$\gamma rac{\gamma}{3} - 7 = -4$$

B. 12

C. 6

D. 9

Answer: D



**27.** Solve for x : 12x - 7 = 7x - 13

A. - 1.2

 ${\rm B.}-1.6$ 

C. -1.8

D. - 1.4

Answer: A



**28.** Solve for  $m\!:\!1.2m+2.6=5$ 

B. 3 C. 2

A. 4

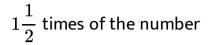
D. 1

### Answer: C

Watch Video Solution

29. Divide Rs 98 inot two parts such that one part is 6

30. One-third of a number is equal to 24, then find the value of



Watch Video Solution

31. The sum of three consectuve integers is 24. Find the smallest

number

> Watch Video Solution

32. Solve, 
$$rac{x}{3}+rac{x}{6}+rac{x}{9}=11$$



**33.** Solve  $0.5\gamma + 0.75y = 125$ 

**34.** Solve : 2.5t + 7.3t = 21.6 - t

Watch Video Solution

**35.** Equal parts of a flag pole are painted with saffron, white, and green colours. If one-third of the portion painted green is 2 m long, then find the length of the pole

Watch Video Solution

**36.** A person covered 5/8 of his journey and he has to walk 240

m more to complete his journey. Find the total distance of the

journey



**37.** A boy has given 7/12 of his marbles to his friend and is left with only 20 marbles. Find how many marbles he had with him initially

Watch Video Solution

**38.** A number is multiplied by 5 and 25 is subtracted from the product. The result is equal to four times the number itself. Find the number



**39.** One-fouth of a certain number exceeds its one-seventh by 3.

find the number

**40.** Solve : 
$$rac{5x-2}{3}+rac{4x+3}{2}=rac{3x+19}{2}$$

Watch Video Solution

**41.** Solve : 0.3(3y - 4.5) + 2.9(5.5 - 5y) = 1

Watch Video Solution

**42.** Solve : 
$$rac{9m+4}{5} - rac{27m+1}{8} - rac{1}{2} = 0$$

Watch Video Solution

**43.** Solve :  $2m+5>9-4m, m\in Q$ 

**44.** Solve : 
$$\frac{z}{2} - \frac{z}{3} - \frac{z}{4} = -1$$

Watch Video Solution

**45.** Solve 
$$rac{\gamma+2}{3}+rac{\gamma+3}{2}=\gamma+1$$

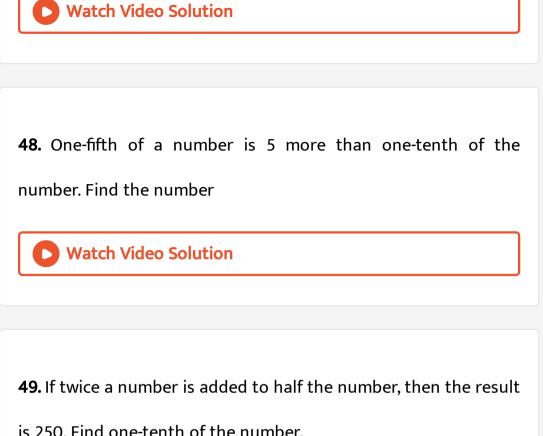
## > Watch Video Solution

**46.** Solve: 
$$rac{3n+8}{7n-4}=1$$

Watch Video Solution

**47.** Solve: 2(3k+7) + 3(2k-5) = 23

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is 250. Find one-tenth of the number.

Watch Video Solution

**50.** Solve for  $x, 8x + 4 \leq 20$  in the set of natural numbers



51. Five years ago, the age of a person was half of his present

age. How old is he now?

Watch Video Solution

**52.** The present age of A is twice that of B. The sum of their present ages is 33 years. Find the present age of A (in years)

Watch Video Solution

**53.** In a two-digit number, the units digit is twice the ten's digit and the difference between the number and the number formed by reversing the digits is 18. Find the original number

**54.** Thirty years ago, the age of a man was three-fifth of his present age. Find the present age (in years)



**55.** The present age of Shobha is equal to one-fifth of her mother Sudha's age. Twenty -five years later, the age of Shobha will be 4 years less than half the age of her mother Sudha. Find their present ages.



**56.** In a two-digit number, the ten digit is one more than twice the units digit. The sum of the digits is 36 less than the number formed by reversing the digits. Find the product of the digits 57. A man's age 15 years hence would be two times his age six

years ago. Find his present age

Watch Video Solution

**58.** In a two-digit number, the sum of the digit is 5 more than the units digit. The difference between the original number and the sum of digits is 10 more than the number formed by reversing the digits. Then find the difference between the digits.

# Watch Video Solution

59. Solve : 
$$rac{4t}{5}-rac{5}{3}<rac{t}{4}+rac{3}{2},t\in Q$$

60. Solve 
$$4b-3 < rac{b}{2}+7$$

## Watch Video Solution

**61.** Solve : 
$$rac{14y}{3}+rac{3}{2}\leq rac{20y}{3}-rac{83}{4}$$
 , where  $y\in Z$ 

Watch Video Solution

**62.** Solve 6x - 7 > 5x - 6

## Watch Video Solution

**63.** In a two-digit number, the sum of the digits is 9. If 9 is subtracted from the number, then the digits get reversed. Find

**Watch Video Solution** 

**64.** A purse contains a certain number of coins of denominations Rs 1 and 25 paise. The total value of the coins (in Rs) is 6 less than the total number of coins. Find the number of 25 paise coins



**65.** Rs x is divided among Mr Bilhari, Mr Narahari, and Mr Murahari. The share of Bilhari is one-fourth of the total money, the share of Murahari is one-third of the remaining money and the share of Narahari is Rs 1200. Find x



# Concept Application Level I

**1.** The root of the equation 
$$rac{3}{4}p+8=17is$$
\_\_\_\_\_

A. 5

B. 12

C. 20

D. 11

### Answer: B

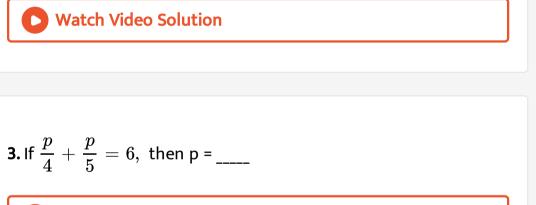


**2.** Find the solution of the equation 3x - 4 = 5?

A. x=5B. x=4C. x=2

$$\mathsf{D}.\,x=3$$

Answer: D



**4.** If 
$$a=3,\,$$
 then  $9a+1.5=$  \_\_\_\_\_\_



5. If  $\displaystyle rac{0.2}{x} + 0.1 \geq 2.1$ , then  $x \leq$  \_\_\_\_\_

A. 1

B.0.1

 $\mathsf{C}.2$ 

 $\mathsf{D}.\,0.2$ 

### Answer: B

**Watch Video Solution** 

6. If 
$$\frac{x}{12} + \frac{1}{2} = x - 5$$
, then  $x =$ \_\_\_\_.

A. 2

B. 4

C. 8

Answer: D



A. 1/4

- $\mathsf{B.1/2}$
- **C**. 8
- D. 6

### Answer: B



**8.** If 
$$5\left(rac{a}{6}+rac{1}{2}
ight)=5a-10,\,\, ext{then}\,\,a=$$
\_\_\_\_\_\_.

B. 1/3

C. 6

 $\mathsf{D.}\,1/6$ 

### Answer: A

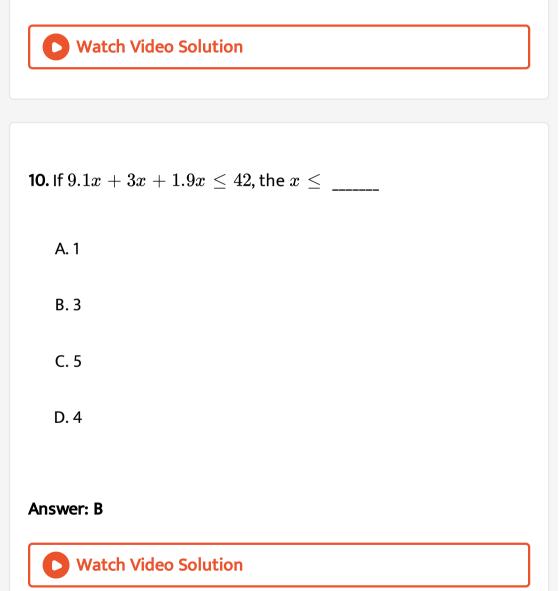
Watch Video Solution

B. 2/3

C. 12/11

D. 3/11

Answer: C



11. If  $5z+1.5(0.5z+10)\geq 590$ , then  $z\geq$ 

A. 15

B. 100

C. 150

D. 200

### Answer: B

Watch Video Solution

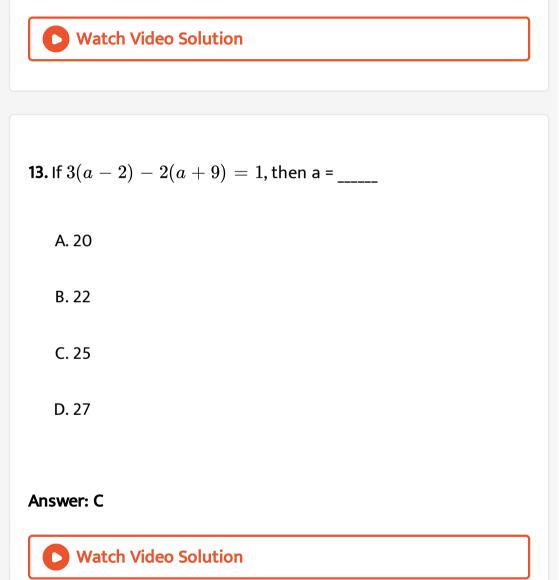
12. If 
$$8.3x - 9.8 = x + 26.7$$
, then x = \_\_\_\_

A. 2

B. 3

C. 4

Answer: D



**14.** If 
$$2(x-5) = \frac{x}{2} + 5$$
, then x = \_\_\_\_.

B. 9

C. 10

D. 11

### Answer: C

Watch Video Solution

**15.** Find the value of 
$$p: 3p-4 = -16$$

A.-3

 $\mathsf{B.}-4$ 

C.-5

### Answer: B

# Watch Video Solution

16. Solve for 
$$a, \frac{a}{6}+29=36$$

A. 30

B.42

C. 90

D. 120

### Answer: B



17. Solve for p-5p-6=8p-4

A. -1/3B. -1/6C. 1/3

D. 2/3

### Answer: B



**18.** Solve for k : 1.5k - 3.7 = 0.8

A. 7

B. 6

C. 5

### Answer: D

# **Watch Video Solution**

19. Solve : 
$$\frac{3x+4}{7} - \frac{x+5}{14} = \frac{x}{28} + \frac{x+1}{14}$$
  
The following steps are involved in solving the above problem.  
Arrange them in sequential order  
(A)  $5x + 3 = \frac{3x+2}{2} \Rightarrow 10x + 6 = 3x + 2$   
(B)  $\Rightarrow 7x = -4$   
(C) Given  $\frac{3x+4}{7} - \frac{x+5}{14} = \frac{x}{28} + \frac{x+1}{14}$   
 $\Rightarrow \frac{6x+8-x-5}{14} = \frac{x+2x+2}{28}$   
(D)  $\Rightarrow x = -\frac{4}{7}$ 

A. ABCD

B. CADB

C. CABD

D. BCAD

Answer: C

Watch Video Solution

**20.** Two-third of a certain number exceeds one-third of the number by 10. Find the number. The following steps are involved in solving the above problem. Arange them in sequential order

(A) 
$$\frac{2x}{3} - \frac{x}{3} = 10$$
 (given)  
(B)  $\frac{2x - x}{3} = 10 \Rightarrow \frac{x}{3} = 10$ 

(C)  $\Rightarrow x = 30$ 

(D) Let the number be x

A. DACB

B. BDAC

C. ADBC

D. DABC

Answer: D

Watch Video Solution

21. Solve : 
$$rac{7x+3}{4} + rac{9x-5}{8} = rac{16x-3}{16}$$

The following steps are involved in solving the above problem.

Arrange them in sequential order

(A) 
$$x = \frac{-5}{30} = \frac{-1}{6}$$
  
(B)  
 $\frac{7x+3}{4} + \frac{9x-5}{8} = \frac{16x-3}{16} \Rightarrow \frac{14x+6+9x-5}{8} = \frac{16x-3}{16}$   
(C)  $\frac{23x+1}{8} = \frac{16x-3}{16} \Rightarrow 23x+1 = \frac{16x-3}{2}$   
(D)  $46x+2 = 16x-3 \Rightarrow 30x = -5$ 

### A. BCDA

B. CBDA

C. BCAD

D. BDCA

Answer: A



**22.** One-third of a certain number exceeds  $\frac{1}{9}th$  fo the number by

20. Find the number.

The following steps are involved in solving the above problem.

Arrange them in sequential order

(A) Let the number x

(B) 
$$\frac{2x}{9} = 20 \Rightarrow \frac{x}{9} = 10 \Rightarrow x = 90$$
  
(C) Given  $\frac{x}{3} - \frac{x}{9} = 20$   
(D)  $\frac{3x - x}{9} = 20$ 

A. ABCD

B. ACDB

C. DACB

D. CADB

Answer: B

**O** Watch Video Solution

# Column AColumn BIf $\frac{17}{3}x + 20 = 71$ , then x =(a) $y < \frac{36}{5}$ ......The root of the equation<br/> $\frac{4}{5}x + 9 = 2x - 3$ is ...(b) 9The solution set of $\frac{y}{6} + \frac{4}{5} <$ (c) $y > \frac{36}{5}$ 2 is...

If 69 is divided into two (d) 10 parts such that one part is twice the other, then the greater part is \_\_\_\_.

(e) 46

(f) 23

23.

## Watch Video Solution

### Column A

Column B

Column 11	
27. If $\frac{15}{2}y + 10 = -5$ , then $y = $	(a) $x > 5$
28. The root of the equation $\frac{7}{2}x + 2 = 14 + 3x$ is	(b) 64
29. The solution set $\frac{x}{5} + 4 > 5$ of is	(c) -2
<ol> <li>If 96 is divided into two parts such that one part is twice the other, then the greater part is</li> </ol>	(d) 2
	(e) 24
	(e) 24 (f) <i>x</i> <5

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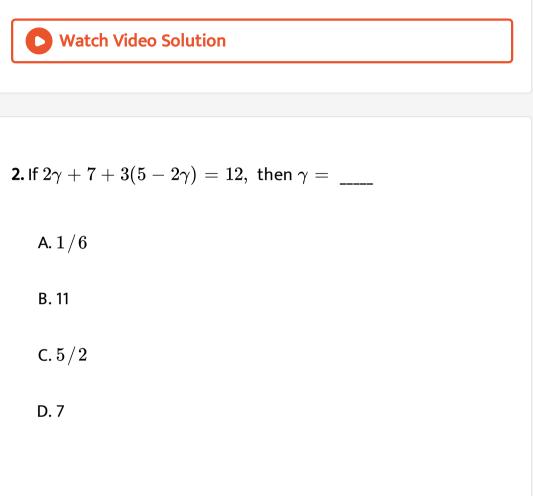
24.

# **Concept Application Level Ii**

1. If 
$$\frac{9x-5}{7}+\frac{6-3x}{2}=3,\,$$
 then x = \_\_\_\_.  
A.  $2/3$   
B.  $3/4$   
C.  $5/4$ 

 $\mathsf{D.}\,4/3$ 

### Answer: D



### Answer: C



3. If 
$$rac{z+5}{7}+rac{4(z-11)}{9}+3=0$$
, then z = \_\_\_\_\_

A. 1

B. 2

C.-4

D. 5

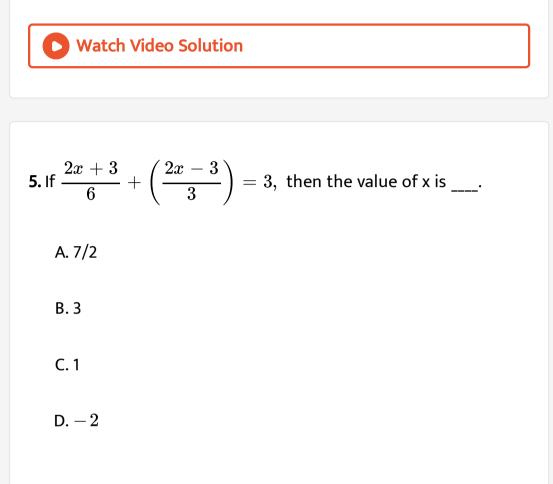
Answer: B



**4.** If 
$$\frac{0.3(3x-4)}{5} + \frac{0.4x+3.6}{5} = 3.5x$$
 then x = \_\_\_\_  
A. 0.1  
B. 0.3  
C. 0.5

 $\mathsf{D}.\,0.2$ 

### Answer:



### Answer: A



6. Two-third of a number exceeds one-third of the number by 10.

### Find the number

A. 10

- B. 20
- C. 30
- D. 40

Answer: C



**7.** A number is doubled and half of the number is added to it. If 10 is substracted from the result, then we get a number which is one less than the original number. Find the original number

A. 5	
B. 6	
C. 7	
D. 8	

Answer: B



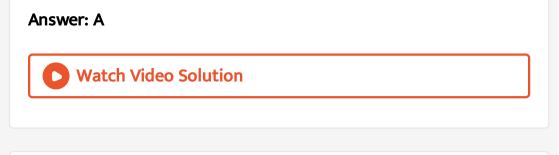
**8.** If a number is multiplied by 5 and 5 is added to it, then the result is equal to 50. Find the number

A. 8

B. 7

C. 6

D. 9



**9.** If seven times a number is added to one-fifth of itself, then five-

sixth of the sum is equal to 30. Find the number

A. 5

B. 6

C. 15

D. 40

Answer: A

Watch Video Solution

**10.** If one-fouth, half, and one-third of a number are added to the number itself, then the result is equal to 25. Find the number

A. 10

- B. 11
- C. 12
- D. 14

Answer: C



11. Solve for 
$$y \colon rac{y}{5} + rac{y}{7} = 12$$

A. 70

B. 140

C. 35

D. 105

Answer: C

# Watch Video Solution

**12.** Solve for x: 
$$\frac{5x-3}{2x+3} = \frac{1}{2}$$

A.
$$-4$$

B. 3

C. 
$$\frac{9}{8}$$

$$\mathsf{D}.-2$$

Answer: C

13. Solve for :  $\gamma$  :  $3(\gamma-4)-5(\gamma+5)=-21$ 

 $\mathsf{A.}-4$ 

- B.-7
- C.-3
- D.-8

Answer: D

**Watch Video Solution** 

**14.** Two-third of a number is 32 less than three-fifth of the number. Find the number

A. 360

B. - 480

 $\mathsf{C.}-260$ 

 $D.\,480$ 

Answer: B



**15.** If one third of a number is subtracted from three times the number, then the result is 800, find the number.

A. 300

B.400

C. 200

D. 600

### Answer: A



16. Solve:  $7y-3 \leq 2y+14, y \in W$ .

A.0, 1, 2

B. 1, 2, 3

C.0, 1, 2, 3

D.1, 2, 3, 4

Answer: C



**17.** In a two-digit number, the tens digit is twice the units digit. If the sum of its digits is 9. Find the number

A. 63 B. 82

C. 72

D. 36

Answer: A



**18.** The present age of a man is seven times the present age of his son. Two years ago, the age of the man was elevent times the age of the son. Find the present age of the man (in years)

A. 35

B. 26

C. 47

D. 45

Answer: A

**Watch Video Solution** 

**19.** Th present age of A is thrice that of B. Five years from now, A's age will be 8 years more than twice B's age. Find the present age of B (in years)

A. 10

B. 13

C. 12

Answer: B



**20.** The sum of the present ages of Ram and Shyam is 75 years. Ten years ago, Ram's age was 4 times the age of Shyam. Find the difference between their present ages (in years)

A. 22

B. 23

C. 33

D. 30

### Answer: C



**21.** A road divider of certain length is painted one-sixth yellow, three-fifth black, and the remaining 28m is painted white. Find the length of the divider

A. 100 m

B. 120 m

C. 150 m

D. 92m

Answer: B



**22.** Mr Sumanth spends two-fifth of his salary on house rent and one-fouth on food. After spending Rs 2000 on miscellaneous, if he could save an amount of Rs 5000, then find his monthly income (in Rs)

A. 20000

B. 25000

C. 15000

D. 16000

Answer: A



**23.** In a two-digit number, the units digit is 3 more than the ten's digit. The sum of the digits is 18 less than the original number.

### Find the product of the digits

B. 40

A. 54

C. 10

D. 28

### Answer: C

Watch Video Solution

**24.** A number is added to two-third of itself, 1 is subtracted from the sum and the result is divided by 12. If the final result is 12, then find the number.s

A. 20

B.87

C. 84

D. 74

**Answer: B** 

Watch Video Solution

**25.** The present age of A is 4 years less than twice the present age of B. B's present age is 6 years more than twice his age 15 years ago. Find the difference of their ages

A. 30 years

B. 32 years

C. 20 years

D. 22 years

### Answer: C

Watch Video Solution

**26.** A mother said that, her age is one year less than thrice her dauther's age. The daughter is 9 years less than the difference between their present ages. Find the sum of their ages (in years)

A. 45

B.47

C. 39

D. 35

Answer: C



**27.** There are two numbers, the difference between them is equal to twice the smaller number. The sum of the two number is 68. Find the product of the two numbers

A. 867 B. 965 C. 814

D. 986

### Answer: A

Watch Video Solution

**28.** A student painted a circular region of certain area such that 4/7th of the area was pink, 1/10th area was green, and 2/7th

was yellow. The remaining area of  $6m^2$  was white. Find the area of the region which is painted pink (in sq. units)

A. 95 B. 140 C. 240

### Answer: D

D. 80



**29.** In a two-digit number, tens digit is a multiple of the units digit. The sum of the number and the number formed by reversing the digits is 132. Which of the folloiwng can be the product of the two digits ?

A. 27

B.35

C. 18

D. 16

Answer: B



**30.** There are three house-hold articles. The cost of the first article is two-fifth the cost of the third article and the cost of the third article is twice the cost of second article. If the total cost of the three articles is Rs 228, then find the cost of the first article (in Rs)

B. 48

C. 50

D. 54

Answer: B



**31.** In an isoceles triangle, the difference between one of the equal sides and the unequal side (longest of the three) is 3/10 of the sum of the equal sides. If the perimeter of the triangle is 90 cm, then find the length of unequal side in centimetres

A. 40

B.25

C. 50

Answer: A



**32.** Mr Anthony travelled 4/9 of a cetain distance by bus, 1/3 by car, and the remaining 6 km by scooter.

Find the distance by bus (in Km)

A. 12

B. 18

C. 9

D. 27

### Answer: A

**33.** Which of the following is a solution of  $\frac{2x-5}{3} > \frac{3x+3}{4}$  ?

A. 
$$x = -5$$

- B. x = -2
- C. x = -29
- D. x = -30

### Answer: D

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**34.** The unit digit of a two-digit number is 6. If 9 is added to the number, then the number obtained is 5/4th of the number itself. Find the sum of the digits

Α.	7

B. 8

C. 9

D. 10

Answer: C



**35.** A purse contains a cetain number of coins fo denominations Re. 1 and 50 paise. The total value of the coins (in Rs) is 14 less than the total number of coins. Find the number of 50 paise coins

A. 12

B. 18

C. 22

D. 28

Answer: D

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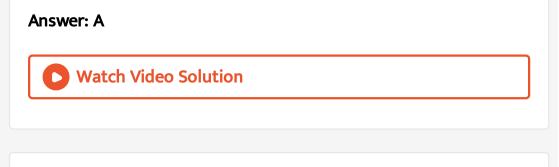
**36.** Rs x is divided among A, B and C. The share of A is two-fifth of the total money, the share of B is two-third of the remaining money, and the share of C is Rs 600. Find the value of x

A. 3000

B. 4000

C. 5000

D. 6000



**37.** Ten years ago, Mohan's age was 35 years less than twice his

present age. Find Mohan's present age (in years)

A. 15

B.20

C. 25

D. 10

Answer: C

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**38.** Ram, Shyam, and Tarun have a total of Rs 600 with them. The amount with Ram is equal to half of the total amount with the others. Find the amount with Ram (in Rs)

A. 150

B. 120

C. 200

D.

### Answer: D

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39. The difference of the digits of a two-digit number is 8. The

sum of its digits can be \_\_\_\_

A. 8

B. 10

C. (c) Either (a) or (b)

D. Neither (a) or (b)

Answer: C



**40.** Ramesh and Suresh have a total of Rs 200. If Ramesh gives Rs 40 to Suresh, then the amounts with both would get interchanged. Find the amount with Suresh (in Rs)

A. 70

B. 60

C. 50

Answer: D

