PRATIKSHYA PANI VIII A

Holiday Homework

MATHEMATICS

1= Reciprocal of zero is a

a= 0

b= 1

c= -1

d= None of the above.

2= The multiplicative inverse of 10^{-100} is

a= 10^{100}

b= 10^{-100}

c= 10

d= 100

3= Zero (0) is the identity for addition of rational numbers.

a= the identity for subtraction of rational numbers.

b= the identity for multiplication of rational numbers.

c= the identity for division of rational numbers.

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4. One (1) is the identity for addition of rational numbers.
a. the identity for subtraction of rational numbers
b. the identity for multiplication of rational numbers.
c. the identity for divison of rational numbers.

5. Find the least number by which 1323 must be multiplied so that the product is a perfect cube.
a) 5 b) 6 c) 7 d) 8

6. 2.7 is what percent of 18?
a) 10% b) 15% c) 1.5% d) 20%

1. If A & B are two sets such that n(A)=15, n(B)=21 & n(A∪B)=36 then n(A∩B) equal to

ans- ~~(A∪B) = n(A) + n(B) = A∩B~~

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~~ans (A∪B) = A+B − A∩B~~

ans − $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

$36 = 15 + 21 - x$

$36 = 36 - x$

$x = 36 - 36$

$x = 0$

Ans = option b

2 − If 5A × A = 399, then the value of A is

=

$$\begin{array}{r} 5A \\ \times \; A \\ \hline 399 \end{array}$$

Then A value = 7

$$\begin{array}{r} 57 \\ \times \; 7 \\ \hline 399 \end{array}$$

ans = option b

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3- If 30 men can do a work in 24 days, how many men will do the same work in 12 days?

ans:

ans=

No. of men	30	x
No. of days	24	12

- $30 \times 24 = x \times 12$

$\Rightarrow 12x = 30 \times 24$

$\Rightarrow x = \frac{30 \times 24^{2}}{12} = 60$

ans = option b = 60

10 = a + b = b + a = a. commutative laws of addition.

11- Insert three rational numbers between 2/3 and 3/4

ans = LCM of 3 and 4 = 12

- $\frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

$\frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

$3+1=4$

$= \frac{8 \times 4}{12 \times 4} = \frac{32}{48}$

$\frac{9 \times 4}{12 \times 4} = \frac{36}{48}$

$= \frac{33}{48}, \frac{34}{48}, \frac{35}{48}$

12: Simplify $(12)^{-2} \times 4^3$

$= (3 \times 4)^{-2} \times 4^3$

$= \left(\frac{1}{3} \times \frac{1}{4}\right)^2 \times 4^3$

$= \frac{1}{3^2} \times \frac{1}{4^2} \times 4^3$

$= \frac{1}{3^2} \times 4^{3-2}$

$= \frac{1}{3^2} \times 4^1$

$= \frac{4^2}{3^2}$

14. Write the following rational numbers in the descending order.

$$\frac{8}{7}, \frac{-9}{8}, \frac{-3}{2}, 0, \frac{2}{5}$$

Ans- ~~LCM of 7, 8, 2 and 5 =~~

$$= \frac{8}{7}, \frac{2}{5}, 0, \frac{-3}{2}, \frac{-9}{8}$$

15. Additive inverse of $7 = -7$

Multiplicative inverse of $7 = \frac{1}{7}$

$$\text{Sum} = \frac{1}{7} + (-7)$$

$$\frac{1}{7} - 7 = \frac{1 - 49}{7} = -\frac{48}{7}$$

16. $(3y^2 - 5y) + (4y^2 + 12) + (\text{third side})$

$$= 8y^2 - 9y + 4$$

$$= \{3y^2 - 5y + 4y^2 + 12\}$$

$$= 3y^2 + 9y^2$$

$= (7y^2 - 5y + 12) + (\text{third side}) = 8y^2 - 9y + 4$

$\text{third side} = (8y^2 - 9y + 4) - (7y^2 - 5y + 12)$

$= y^2 - 4y - 8$

17. A's 1 day work $= \frac{1}{20}$

B's " " " $= \frac{1}{15}$

(A+B)'s " " $= \frac{1}{20} + \frac{1}{15} = \frac{3+4}{60} = \frac{7}{60}$

(A+B)'s 6 " " $= \frac{7}{60_{10}} \times 6 = \frac{7}{10}$

Remaining work $= 1 - \frac{7}{10} = \frac{10-7}{10} = \frac{3}{10}$

B to finish the remaining work

$= \frac{\text{remaining work}}{\text{B's 1 day work}} = \frac{3/10}{1/15}$

$= \frac{3}{10_2} \times \frac{15^3}{1} = 6 \times \frac{9}{2} = 4\frac{1}{2}$

18) At what rate per cent per annum will Rs. 630 produce an interest of Rs. 126 in 4 years?

ans- $P = 630$

$I = 126$

$T = 4$ years

$$R = \frac{126 \times 100}{630 \times 4} = 5$$

ii) At what rate percent year will a sum double itself in 6 years.

ans. $P = x \quad A = 2x$

$T = 6$

$$I = \frac{PTR}{100} = \frac{6R}{100} \Rightarrow x = \frac{6}{6} \frac{100}{}$$

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19- Calculate the difference between the compound interest and the simple interest on ₹7500 in two years at 8% per annum

ans- Principal for 1st year = ₹7500

Interest for 1st year = $\frac{7500 \times 1 \times 8}{100} = 600$

Amount = P + I
= 7500 + 600
= ₹8100

Principal for 2nd year = ₹8100

Interest for 2nd year = $\frac{8100 \times 1 \times 8}{100}$
= 648

Amount = P + I
= 8100 + 648
= ₹8748

The compound interest in 2 years = 8748 - 7500
= 1248

Compound interest = P = 7500 T = 2 years
R = 8%

$= \frac{7500 \times 8 \times 2}{100} - 1200$

= C.I. − S.I.

= 1248 − 1200

= 48

20 – If the price of sugar is increased by 25% today; by what percent should it be decreased tommorrow to bring the price back to the original?

ans = Let B's income = ₹100

A's income = ₹100 + 25% of 100

= ₹100 + $\frac{25}{100}$ × 100 = ₹125

If A's income is ₹125 B's income is ₹25 less than A

20= If the price of sugar is increased by 25% today; by what percent should it be decreased tommorrow to bring the price back to the original?

ans= Let the original price of wheat be ₹100

Today's price = ₹100 + ₹25 = ₹125

To bring down the price to the original
- ₹125 - ₹100 = ₹25 on ₹125

On ₹125, the price should be decreased by ₹25

⇒ On ₹1, the price should be decreased
b = $\frac{₹25}{125}$

and on ₹100, the price should be decreased by ₹$\frac{25}{125}$ × 100% = 20%

∴ The price should be decreased by 20%

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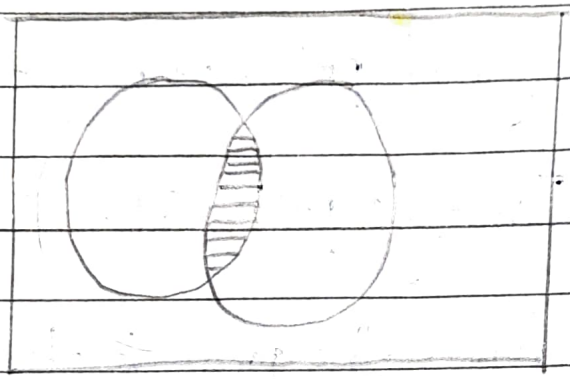
21. In a Group of 500 people, 250 can speak French & 300 can speak Germen. How many can speak both French & German. Represent it in Venn diagram.

ans-



22. John sold an article to peter at 20% profit and peter sold ~~an article~~ it to mohan at 5% loss. If ~~mohan~~ mohan paid Rs. 912 for the article; find how much did John pay for it?

ans- S.p = ₹912 % Grain = 5%

$$C.p. = \frac{100}{95} \times \overset{9.6}{\cancel{912}} = ₹960$$

S.p = ₹960 % gain = 20

$$C.p = \frac{100}{120} \times \overset{8}{\cancel{960}} = ₹800$$

∴ John paid ₹800 for it.

23- Rajesh sold his scooter to Rahim at 8% loss and Rahim, in turn sold the same scooter to prem at 5% gain. If prem paid Rs. 14,490 for the scooter; find:

i) the S.P. and C.P. of the scooter for Rahim.

ii) the S.P. and C.P. of the scooter for Rajesh.

ans- i) S.P. of Rahim = ₹ 14,490

C.P. of Rahim = S.P. − 5% of S.P.

= S.P. × (100 − 5)%

$= \frac{14490 \times 95}{100} = \frac{27531}{2}$

= 13765.5

ii) S.P of Rajesh = 13765.5

C.P. of Rajesh = 13765.5 + 8% of S.P.

= (100 + 8)% × 13765.5

$= \frac{108 \times 13765.5}{100} = \frac{27531}{2}$

$= \frac{27531}{50} = 550.62$

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24- Insert six rational numbers between 5/6 and 8/9

ans= $\frac{5}{6}$ and $\frac{8}{9}$

LCM of 6 and 9 = 18

$= \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$ $\frac{8 \times 2}{9 \times 2} = \frac{16}{18}$

6+1 = 7

$= \frac{15 \times 7}{18 \times 7} = \frac{105}{126}$ $\frac{16 \times 7}{18 \times 7} = \frac{112}{126}$

$= \frac{106}{126}, \frac{107}{126}, \frac{108}{126}, \frac{109}{126}, \frac{110}{126}, \frac{111}{126}$

25- If $\sqrt{7884} = 28$, find the value of i) $\sqrt{7.84} + \sqrt{78400}$

Sol- $= 2.8 + 280$

$= 282.8$

ii) $\sqrt{0.0784} + \sqrt{0.000784}$

Sol- $0.28 + 0.028$

$= 0.308$

26- Find, which of the following sets are singleton sets:

i) $B = \{y : 2y + 1 < 3 \text{ and } y \in W\}$

ans $2y + 1 < 3 \Rightarrow y < 1$

$\Rightarrow 2y < 3 - 1$ Possibility elements - $\{y = 0, 1\}$

$\Rightarrow 2y < 2$

$\Rightarrow y = \frac{2}{2} = 1$

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27. If John sells his bicycle for Rs. 637, he will suffer a loss of 9%. For how much should it be sold, if he desires a profit of 5%?

ans = S.P. = ₹637 loss = 9%

$$C.P. = \left(\frac{100}{100-9}\right) \times ₹637$$

$$C.P. = \frac{100}{91} \times ₹637 = ₹700$$

C.P. = ₹700, gain = 5%, S.P. = ?

$$S.P. = \left(\frac{100+5}{100}\right) \times 700$$

$$= \frac{105}{100} \times ₹700 = ₹735$$

= ₹735

PRATIKSHYA PANIGRAHI.

28- If 3 men or 6 boys can finish a work in 20 days, how long will 4 men and 12 boys take to finish the same work?

ans- 3men = 6boys

1 men = $\frac{6}{3}$ 2 boys, 4men = 8 boys

Boys		Days
6		20
20		x ?
6 x 20	=	20 x x
=> 120	=	20 x x
=> x	=	$\frac{120}{20} = 6$

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29- A family of 5 persons can be maintained for 20 days with Rs. 2,480. Find, for how long Rs. 6944 will maintain a family of 8 persons.

ans=

Person	Days	Money
5	20	2480
8	x	6944

$$\frac{8}{5} \times \frac{x}{20} = \frac{6944}{2480}$$

$$\Rightarrow \frac{x}{20} = \frac{6944}{2480} \times \frac{8}{8}$$

$$\Rightarrow x = \frac{868}{496} \times 20^{5} = \frac{1085}{31} = 35$$

$\therefore$ 35 days

30-

ans=

30- Find the proper subsets of $\{x : x^2 - 9x - 10 = 0\}$

ans= $x^2 - 9x - 10 = 0$

$\Rightarrow x^2 - 10x + 1x - 10 = 0$

$\Rightarrow (x^2 - 10x) + 1(x - 10) = 0$

$\Rightarrow x(x - 10) + 1(x - 10) = 0$

$\Rightarrow (x + 1)(x - 10) = 0$

$\Rightarrow x + 1 = 0$ or $x - 10 = 0$

$\Rightarrow x = -1$ or $x = 10$

Proper subset = $\{-1, 10\}$

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