HW
16/04/2021

AUTUMN HOLIDAY HOMEWORK :-

1. Reciprocal of zero is
   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~~
   a addition of rational number
   b. ~~#~~ substraction of rational number
   c. multiplication of rational number
   d. divison of rational number

4. One (1) is the identity for ~~addition of rational numbers~~
   a) addition of rational number
   b) identity for substraction of rational number
   c) multiplication of rational number
   d) divison of rational number.

5. Find the least number by which 1323 must be multiplied so that the product is a perfect cube

a) 5
b) C
c) 7
d) 8

6. 2.7 is what percent of 8?
a) 10%
b) 15%
c) 1.5%
d) 20%

7. If A & B are two such that n(A) = 15, n(B) = 2 & n(A∪B) = 36 then n(A∩B) equal to
a) 2
b) 0
c) -4
d) 15.

8. If 5A × A = 399, then the value of A is
a. 3
b. 7
c. 6
d. 9

9. If 30 man can do a work in 24 days. How many men will do the work in 12 days.
a) 30
b) 60

10. $a+b-b+a$ is called
a. commutative law of addition
b. distributive law of addition
c. whole number
d. associative law of addition

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

$\left(\frac{1}{12}\right)^2 \times 4^3$

$\frac{1}{144} \times 64^{1} = \frac{1}{27}$

12) Long rope is cut into 12 pieces. What is length of each piece? 2

14) Write the following rational numbers in descending order.

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

LCM = $7 \times 8 \times 2 \times 5 = 280$

$= \frac{8 \times 40}{7 \times 40} = \frac{320}{280}$

$= \frac{-9 \times 35}{8 \times 35} = \frac{-315}{280}$

$= \frac{-3 \times 140}{2 \times 140} = \frac{-420}{280}$

$= \frac{0 \times 280}{1 \times 280} = \frac{0}{280}$

$\frac{320}{280}, \frac{-315}{280}, \frac{-420}{280}, \frac{0}{280}$

Descending Order :-

$\frac{-420}{280}, \frac{-315}{280}, \frac{0}{280}, \frac{112}{280}, \frac{320}{280}$

15) Find the sum of additive inverse and multiplicative inverse of 7

Additive inverse of $7 = -7$

Multiplicative inverse: $\frac{1}{7}$

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

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

16) the perimeter is $8y^2-9y+4$ and its two sides are $3y^2-5y+12$ and $4y^2$. Find its third side

Perimeter of the triangle = Sum of three sides

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

Sum of two sides. $3y^2-5y+4y^2+12$

$= 7y^2-5y+12$

$\therefore (8y^2-9y+4)-(7y^2-5y+12)$

$= 8y^2-9y+4-7y^2+5y-12$

$= y^2-4y-8$

Hence third side $= y^2-4y-8$

17) A can do a piece of work in 20 days and B in 15 days. they worked together on it for 6 days and then A left. How long will B take to finish the remaining work?

Given A can do the work in 20 days and B can do it 15 days

Then work done by A in one day $= \frac{1}{20}$

Then work done by B in one day $= \frac{1}{15}$

Work done by A & B in one day

$= \frac{1}{20}+\frac{1}{15} = \frac{7}{60}$

A & B done 6 days together by A & B

then work done in A & B in 6 days $= \frac{7}{60}\times 6 = \frac{7}{10}$

The fraction of work left $= 1-\frac{7}{10} = \frac{3}{10}$

Then B can do $\frac{3}{10}$ work $= \frac{3}{10} \times \frac{19}{1} = \frac{9}{2} = 4\frac{1}{2}$ days.

18) i. At what rate percent per annum will ₹630 produce an interest of ₹126 in 4 years?

$S.I = \frac{P \times T \times R}{100}$

P: 630

T: 4 years

I = ₹126

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

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

ii) At what rate per-cent per year will a sum double itself in 6 years?

let P: 100

A: $2 \times 100 = 200$

I = A - P

= ₹200 - ₹100 = ₹100

T: 6 years

$R = \frac{100 \times I}{P \times T} = \frac{100 \times 100}{100 \times 6} = \frac{100}{6} = 16\frac{2}{3}\%$

19) Calculate the difference b between the compound interest and the simple interest on ₹7,500 in two years and 8% per annum

P = ₹7500
R = 8% P.a
T = 2 years

$S.I = \frac{PRT}{100} = \frac{7500 \times 8 \times 2}{100} = ₹1200$

Interest for the first year = $\frac{7500 \times 8 \times 1}{100} = ₹600$

Amount at the end of the first year = P + S.I
= ₹7600 + 600 = ₹8100

Principal for the second year = ₹8100

I. for the second year = $\frac{8100 \times 8 \times 1}{100} = ₹648$

Total C.I for 2 years = 600 + 648
= 1248

Difference:
C.I − S.I
= 1248 − 1200 = 48

20) If the price of sugar is increased by 25% today; by what percent should it decrease tomorrow to bring the price back to original.

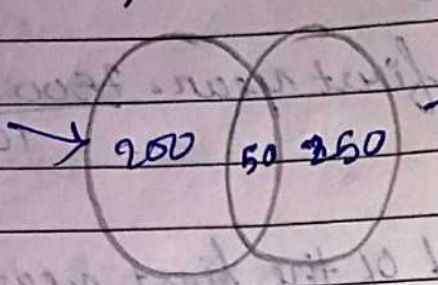
Let the previous price of sugar was = ₹100

Current price: 125% of 100

$= \frac{125}{100} \times 100 = 125$ rupees

We have to bring back to the today's price to the previous means to 100 rupees 125-100=25
25 is what percent of 125. $\frac{25}{125} \times 100 = 20\%$.

21. In a group of 500 people, 250 can speak french & 300 can speak German. How many can speak both french & German. Represent in venn digram.



No. of people = 500
No. of people can speak ~~on~~ french. ~~250~~
No. of people can speak German ~~300~~ 250

22. John sold an article to peter at 20% profit and peter sold it to Mohan at 5% less. If Mohan paid ₹912 for the article, find how much did John pay for it?
C.P of Mohan = S.P of peter = 912
C.P of peter = $\frac{100}{(100-20)} \times 912$

$= \frac{100}{80} \times 912$ 456 228 114 57

1140
5700
5
1

CP of Peter = SP of John = 1140

$\frac{100}{100+20} \times 1140 = \frac{1140}{12} \times 12 = 570$

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 ₹ 14,490 for the scooter; find:

i. then S.P and the C.P of the scooter for Rahim.
ii. the S.P and the C.P of the scooter for Rajesh.

Let CP of the scooter for Rajesh ₹ 100m

SP of Rajesh = $\frac{100m \times 92}{100} = 92m$

This will be C.P for Rahim = 92m, Gain = 5%

∴ S.P for Rahim = $\frac{92m \times 105}{100} = \frac{92m \times 21}{20} = \frac{66m \times 21}{10}$

$= \frac{966m}{10}$

This will be C.P for Prem = ₹14,490

∴ $\frac{966m}{10} = 14,490$

$m = \frac{14490 \times 10}{966} = \frac{1449}{483} \times 5 = 30 \times 5 = 150$

i) C.P of scooter for Rahim = $92m = 92 \times 100 = 150$
$= ₹13800$

S.P of scooter for ~~Rajesh~~ Rahim = $\frac{966m}{10}$

$= \frac{966}{10} \times 150$

i. ₹966 × 15 = ₹14490

ii. CP of scooter for Rajesh = 100% = 100 × 150
= 15000

S.P of scooter for Rajesh = 92% = ₹92 × 150
= ₹13800

2) Insert six rational numbers between 5/6 and 8/9

LCM of 6 and 9 = 18

$\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$

$\frac{8}{9} = \frac{8 \times 2}{9 \times 2} = \frac{16}{18}$

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

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

Therefore, 106/126, 107/126, 108/126, 109/126, 110/126 are the six rational number