Simplification - Solved Examples

Q 1 - 2- [3- {6-(5-4-3)}] = ?

A - 0

B - 1

C - 2

D - 3

Answer - B

Explanation

```
Given exp.  =2- [3-{6-(5-4+3)}]    [ Removing viranaculam]
= 2 - [3-{6-(5-4+3)}]              [ Removing  ( )]
= 2-[ 3- {6-4}]                    [ Removing {}]
= 2-[3-2]                              [ Removing [ ]]
=2-1  = 1
```

Q 2 - (4.8 *1.8 / 3.6 +5.4 of 1/9 -1/5) = ?

A - 2.8

B - 3.8

C - 4.8

D - 5.8

Answer - A

Explanation

```
Given exp .   = 4.8 *1.8  / 3.6+ 0.6-1/5 (Removing of () )
=  4.8 * 1.8 * 1/ 3.6+ 0.6 -1/5   ( Removing /)
= 2.4 +0.6- 0.2    (Removing *)
= 3- 0.2 = 2.8
```

Q 3 - $((598+ 479)^2 - (598- 479)^2)/(598 * 479) = ?$

A - 4

B - 5

C - 6

D - 7

Answer - A

Explanation

```
Given exp. (a+b)^2 -(a-b)^2/ab ,  where a  = 598 , b = 479
= 4ab / ab = 4
```

Q 4 - $((736+ 278)^2 +(736- 278)^2)/(736 *736 + 278 *278) = ?$

A - 1

B - 2

C - 3

D - 4

Answer - B

Explanation

Given exp. = $(a+b)^2 + (a-b)^2$, Where a= 736, b= 278

$(a^2 + b^2)$

$= 2(a^2+b^2)/(a^2+b^2) = 2$

Q 5 - (47*47*47+35*35*35+ 26*26*26 -47*35*78)/(47*47+35*35+26*26- 47*35- 35*26-47*26) = ?

A - 92

B - 100

C - 108

D - 116

Answer - C

Explanation

Given Exp. $a^3+b^3+c^3-3abc$, where a =47 , b= 35, c= 26

$a^2+ b^2+c^2-$ ab-bc -ca

$=(a+b+c) =(47+35+26)= 108$

Q 6 - $[(a-b)^3 + (b-c)^3 + (c-a)^3]/[6(a-b)(b-C)(c-a)]$ = ?

A - 1/2

B - 1/3

C - 1/4

D - 1/5

Answer - A

Explanation

Putting (a-b) =x, (b-c) =y and (c-a) = z ,then we find x+y+z = 0
∴ $x^3 + y^3 + z^3 = 3xyz$
∴ $x^3 + y^3 + z^3 / 6xyz$
= 3xyz/6xyz = 1/2

Q 7 - If a+b+c = 13 ,$a^2 + b^2 + c^2$ = 69,) then (ab+bc+ca) = ?

A - 20

B - 30

C - 40

D - 50

Answer - D

Explanation

We have $(a+b+c)^2 = (a^2+b^2+c^2) + 2(ab+bc+ca)$
⇒ $(13)^2 = 69 + 2(ab+bc+ca)$
⇒ $2(ab+bc+ca) = (169-69) = 100 \Rightarrow (ab+bc+ca) = 50$

Q 8 - We have a/b = 2/3, then what would be the value the 3a+5b/ 3a-5b =?

A - 1/3

B - 2/3

C - 4/3

D - -4/3

Answer - D

Explanation

```
Given exp.   3a+5b/ 3a-5b  = 3(a/b)+5 /3(a/b)-5
= (3*2/3+2)/  ( 3 *2/3-5) =   2+2/2-5 = 4/-3  = -4/3
```

Q 9 - What should be the value of a,b,c if the we have positive integers of a, b and c such that the value of a^2+b^2 =45 and b^2+c^2 = 40.

A - 1,2,3

B - 3,6,2

C - 2,6,4

D - 1,6,2

Answer - B

Explanation

a^2+b^2 = 45 and b^2+c^2 =40

On subtracting ,we get a^2-c^2 =5 $\Rightarrow$ (a+c) (a-c) = 5

$\Rightarrow$ a+c= 5 and a-c = 1 $\Rightarrow$ a = 3, c = 2

$9+ b^2 = 45 \Rightarrow b^2 = 36 \Rightarrow b = 6$
$\therefore a=3, b= 6$ and $c = 2$

Q 10 - (1-1/3) (1-1/4) (1-1/5)...(1-1/99)(1-1/100) = ?

A - 1/40

B - 1/50

C - 1/60

D - 1/70

Answer - B

Explanation

Given exp. 2/3 *3/4 *4/5 * ...* 98/99 * 99/100= 2/100 = 1/50

Q 11 - (1- 1/2)(1- 1/3) (1-1/4) ...(1-1/n-1)(1-1/n) = ?

A - 1/n

B - 1/2n

C - 1/3n

D - 1/4n

Answer - A

Explanation

Given exp.= (1-1/2) (1-1/3)(1- 1/2)...(n-2)/ (n-1) * (n-1)/n = 1/n

Q 12 - 1/5 + 999* 494/495 *99= ?

A - 999000

B - 99000

C - 9000

D - 900

Answer - A

Explanation

```
Given exp.  = 1/5 + (999 + 494/495) * 99
=  1/5 + 999* 99 + 494/495 *99
= 1/5 +(1000-1) * 99 + 494/5
=  999000 -99+  495/5 = 99000-99 +99 = 999000.
```

Q 13 - If x + 1/ {1+ 1/ (3+ 1/4) = 2 , then x = ?

A - 1/17

B - 21/17

C - 20/17

D - 19/17

Answer - B

Explanation

```
x + 1/{ 1+ 1/(3+1/4 )} = 2 ⇒  x+ 1/ { 1+ 1/ (13/4) }=2 ⇒ x+ 1/ (1+ 4/13) = 2
= x + 1/( 17/13) = 2 ⇒  x+ 17/13 = 2 ⇒ x= (2-13/17)
```

```
= x =  34-13/ 17 = 21/17
```

Q 14 - 1 / (1 + (2/3)/(1+ 2/3 + (8/9)/(1- 2/3)))

A - 13/15

B - 12/15

C - 11/15

D - 7/15

Answer - A

Explanation

```
1 / (1 + (2/3)/(1+ 2/3 + (8/9)/(1- 2/3)))
= 1 / (1 + (2/3)/(1+ 2/3 + (8/9)/(1/3)))
= 1 / (1 + (2/3)/(1+ 2/3 + (8/9)/3/1))
= 1 / (1 + (2/3)/(1+ 2/3 + 8/3))
= 1 / (1 + (2/3)/(13/3))
= 1 / (1 + 2/3 * 3/13)
= 1 / (1 + 2/13)
= 1 / (15/13)
= 13/15
```

Q 15 - Find the value of 3/7 of the estate if the value of 4/5 of this estate is 16800.

A - Rs. 9000

B - Rs. 10000

C - Rs. 8000

D - Rs. 7000

Answer - A

Explanation

```
If  we assume x  Rs. is the  estate  value.  Then,
4/5 *x = 16800  ⇒  x= (16800* 5/4)  = 21000
∴ 3/7 of the estate = Rs. (3/7 *21000) = Rs. 9000.
```

Q 16 - What is the number if 3/7 of 2/5 of a number is 198.

A - 1255

B - 1155

C - 1055

D - 955

Answer - B

Explanation

```
If the number  be x then,
3/7 of 2/5 of x =  198
⇒ 6x/35 = 198
⇒ x = (198* 35/6 )  = (33*35) = 1155.
```

Q 17 - Divide the amount 312 in such a way that 100 boys gets Rs. 3.60 each and each girl gets Rs. 2.40. How many girls are there?

A - 40

B - 30

C - 25

D - 20

Answer - A

Explanation

```
If x is the quantity of girls  then,  the quantity of boys = (100-x)
∴ 2.40 *x + 3.60 *(100-x) = 312
⇒  240/100 *x +  {360*(100-x)/100} = 312
⇒  240x + 36000 - 360 x = 31200
⇒ 120x = (36000- 31200 ) = 4800  ⇒ x = 4800/120 = 40
⇒  quantity of girls = 40.
```

Q 18 - A boy wants to multiply a number by 25 but by mistake he multiplied it by 52 and he got the result which was 324 more in the comparisons of correct answer. Find the number?

A - 12

B - 13

C - 14

D - 15

Answer - A

Explanation

```
Let the number be x. then ,
52x-25x = 324 ⇒ 27x = 324 ⇒ x = 12
```

∴ Required number = 12

Q 19 - A cab start from his center with full capacity. Cab stops on stoppage A where 1/3 of the passanger shift down the cab and new 30 passenger entered in cab, in the next attempt cab stop on C Stoppage where 1/4 of the passengers shift down the cab and 12 new passenger entered in the cab and last stoppage which was C all the 84 passengers shifted down. Find how much passengers can board at a time?

A - 98

B - 99

C - 100

D - 101

Answer - B

Explanation

If x passenger can board / sit in a cab at the same time.
Number of passanger between the stations from A to B = (x-x/3 +30) = (2x/3+ 30)
Number of passanger between the stations from B to C = (2x/3+30)- 1/4 (2x/3+30)+12
= 3/4 (2x/30)+12 = x/2 +45/2+12
∴ x/2+ 45/2+12= 84 ⇒ x+ 45+24 = 168 ⇒ x = (168-69)= 99
So, we can say 99 passengers can board at a time.

Q 20 - Total cost of a TV and VCR is Rs. 35000 . If the cost of tv is 3/2 times more in the comparisons of VCR. In that case what should be the value of VCR?

A - 14000 Rs

B - 15000 Rs

C - 16000 Rs

D - 17000 Rs

Answer - A

Explanation

```
If x is the value of  VCR then,  the cost  of the  TV is  = 3x/2
x+ 3x/2 = 35000 ⇒  5x = 70000 ⇒ x = 14000
```