**Assignments**

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 **Subject Business Mathematics**

 **Semester 2nd**

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**Question No 1**

 $What number increased by 25 gives 85?$

 Solution

 $let the number is=x$

 $x+25=85 $

* $x=85-25$
* $x=60 Answer $

**Question No 2**

$ Heat and Electricity cost=1080 $

 $Let the consumption of Light=x $

 $Consumption of Heat is=3x$

 **How much each expense cost to company?**

Solution

 $1+3=4$

So, the expenses of light =$\frac{1}{4}×1080$

* $\frac{1080}{4}$

 **Expenses of light = 270**

 **Now the expenses of heat?**

Expenses of Heat = $\frac{3}{4}×1080$

 For simplification first we will multiply 1080 by 3 and then the total of them will be divided by 4

* $3 ×1080=$ 3240
* $\frac{3240}{4}$ = 810

  **Expenses of heat = 810**

 **For Verification: 810+270 = 1080**

 **Question No 3**

 **Solution**

 $Total Bonus=Rs 540$

$ Ratios 7, 4, 2, 5 $

 *For convenience employees are given ordinal numbers*

 *1st Employee have 7 Ratio*

 *2nd Employee have 4 Ratio*

 *3rd Employee have 2 Ratio*

 *4th Employee have 5 Ratio*

 *To find out the amount received by each employee*

 *Sum of Ratios 7+4+2+5 = 18*

 *Share of 1st Employee* $\frac{7}{18}×540$

 *Multiply 540 with 7 and then the total figure is divided by 18*

* $7×540=3780 $
* $\frac{3780}{18}=210$

***Amount of 1st employee = RS 210***

*Share of 2nd employee* $=\frac{4}{18}×540$

 *Multiply 540 with 4 and then the total figure is divided by 18*

$4×540=2140 $

* $\frac{2140}{18}$*=120*

***Amount of 2nd employee= RS 120***

*Share of 3rd employee=* $\frac{2}{18}×540$

 *Multiply 540 with 2 and then the total figure is divided by 18*

$2×540=1080 $

* $\frac{1080}{18}=60$

***Amount of 3rd Employee = RS 60***

 *Share of 4th Employee-=* $\frac{5}{18}×540$

 *Multiply 540 with 5 and then the total figure is divided by 18*

$5×540=2700$

* $\frac{2700}{18}=150$

***Amount of 4th Employee=150***

***Note: Verification***

$210+120+60+150=540 $

**Question No 4**

$ Age of Son=x$

 $ Age of Father=y $

 According to 1st Condition$ $

 $4x=y$

* $4x=-y=0 \rightarrow Equation 1$

 According to 2nd Condition

 $2\left(x+24\right)=y+24 $

* $2x+48=y+24$
* $2x-y=24-48$
* $2x-y=-24 $**→ Equation 2**

  **Now subtracting equation 2 from Equation 1**

$\frac{\begin{array}{c} 4x - y = 0\\ 2x -y= -24\\- + + \end{array}}{2x = 24 }$

 $2x=24$

* $x=\frac{24}{2}=12 $
* $x=12 $

 Now to find out $y $we will put value of $x in Equation 1$

 $4\left(12\right)-y=0$

* $48-y=0$

$$y=48 Answer $$

**Question No 5**

Solution

 Let the age of girl = $x$

 Age of brother = $y$

$x+y=26 \rightarrow Equation 1$

 3 Years ago

 $Boy was y-3$

 $ Girl was x-3$

 Since the Girl was 4 times

 $x-3=4 \left(y-3\right)$

 $x-3=4y-12$

 $x-4y=-12+3$

$x-4y=-9\rightarrow Equation 2$

 Now subtracting equation 1 from Equation 2

 $\frac{\begin{array}{c} x + y= 26\\ x - 4y=-9\\- + + \end{array}}{ 5y= 35 }$

 $y=\frac{35}{5}$

 $y=7 years$

 **Put in Equation 2**

$x+7=26$

$x=26-7$

$ x=19$ **Years**

**Question No 6**

 Let the two numbers $x and y$

 According to the condition

 $x+y=84 $**→ Equation 1**

 $According to 2nd Condition $

 $x+12=y$

 $x-y=-12\rightarrow Equation 2$

Now Adding Equation 1 in Equation 2

 $ \frac{\begin{array}{c}x + y = 84\\x - y = -12\end{array}}{2x = 72 } $

 $2x=72$

 $x=\frac{72}{2}$

 $x=36$

 Now put in Equation 1

 $36+y=84$

 $y=84-36$

 $y=48$

**Verification**

Put $x=36 \& y=48 in Equation 1$

 $36+48=84$

Hence Proved

So the two numbers are 36 and 48

**Question No 7**

List price =$150

Trade discount =20%

Net cost $=?$

**Solution**

As we know that list price is the suggested retail price of product at which manufacturer recommend that the retail sell the product. So,

***Net cost*** $=List price-trade discount$

$Net Cost=150-0.2\left(150\right)$

* $150-30$

 **Net Cost**$=120$

**Question No 8**

 List Price $=\$150 $

$ Trade Discount={20}/{10}$ (Series discount)

 Net Cost $=?$

  **Solution**

 Discount Series $=100\%-20\%=80\%$

 $100\%-10\%=90\%$

 Now we will write the complaints as discount

 So

 Net decimal equivalent$=\left(0.8×0.9\right)=0.72$

 Now

 Net Cost $=Net decimal equivalent×List Price $

 $Net Cost=0.72×150$

$Net Cost=108$

**Question No 9**

 Selling Price$ =\$18.75$

 $ Cost=15 $

 $Markup based on cost=? $

 Solution

 As we know that

 Markup$=\frac{Price-cost}{cost}$

 $Markup=\frac{18.75-15}{15}$

 $Markup=\frac{3.75}{15}=0.25 $

 $Markup=0.25 or 25\%$

**Question No 10**

 Selling Price (Aspirin)$=\$3.38 per bottle $

 Cost Price $=\$2.60 per bottle$

 **Markup Percent on Cost?**

 Solution

 As we know that

 Markup% $=\frac{price-cost}{cost}×100$

 $Markup\%=\frac{3.38-2.60}{2.60}×100 $

 $Markup\%= \frac{0.78}{2.60}×100$

 $ Markup\%=\frac{78}{2.60}=30\% $

 $Markup\%=30\%$

**Question No 11**

Markup $=26\%$

 Cost $=4.5$

 **b) Selling price** $=?$

 Solution

As we have formula

$$Markup on Cost=( \frac{price-cost}{cost})$$

$$Markup on Cost=0.26\left(\frac{price-4.50}{4.50}\right)$$

By cross multiplications

$$0.26×4.50=price-4.50$$

* $1.17=price-4.50$
* $Price=1.17+4.50$

 **Selling Price** $=5.67 $

**a) Selling Price as Percentage of cost?**

Selling Price$=5.67$

Percentage of cost$=100$

 So, $\frac{5.67}{100}$

 Selling price as % of cost$=0.0567$ or 5.67%

c) Markup

 $Markup=\frac{selling price-cost}{cost}$

 $Markup=\frac{5.67-4.50}{4.50}$

 $Markup= \frac{1.17}{4.50}$

 $Markup=0.26 or 26\%$