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Subject Business Mathematics

Cours MBA 90

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"Assignment 2"

Ans 1: Supose the fraction is $\frac{x}{y}$

Then $x+y = 2y-3$

$x+y = -2y = -3$

$x-y = -3$ —— i

and $\frac{x-1}{y-1} = \frac{1}{2}$

$2(x-1) = y-1$

$2x - 2 = y-1$

$2x-y = -1+2$

$2x-y = 1$ —— ii

(ii) - (i)

$x-y = -3$

$2x-y = +1$

$-x = -4$

$x = 4$ Put in eq ①

$4-y = -3$

$-y = -3-4$

$-y = -7$

$y = 7$ Ans

Ans 2: Let 1 boy alone can finish it in Y days and 1 man can finish the work in x days.

Then

1 man's 1 day work = $1/x$

and

1 boy 1 day work = $1/y$

(4 men 1 day work) + (6 boys 1 day work) = $1/5$

$\Rightarrow 4/x + 6/y = 1/5$

$= 4u + 6v = 1/5$ (where $1/x = u$ and $1/y = v$)

$= 4u + 6v = 1/5$ —— 1

again

(3 men's 1 day work) (4 boy 1 day work) = $1/7$

$3/x + 4/y = 1/7$

$3u + 4v = 1/7$ —— 2

On multiplying (1) by 3 and 2 by 4 we get

$12u + 18v = 3/5$ ——— 3

and $12u + 16v = 4/7$ ——— 3

Sub 3 and 4 we get

$2v = (3/5 - 4/7)$

$2v = 1/35$

$v = 1/35 \times 2$

$v = 1/70$

$1/y = v$

$1/y = 1/70$

$y = 70$ days

Puting $v = 1/70$ in eq 1 we get.

$4u + 6v = 1/5$

$4u = (1/5 - 6v)$

$4u = (1/5 - 6/70)$

$4u = (14 - 6/70)$

$4u = (8/70)$

$u = 8/70 \times 1/4$

$u = 1/35$

$1/x = u$

$1/x = 1/35$

$x = 35$ days

Therefore

one man alone can finish the work in 70 days and one boy alone can finish the work in 35 days.

Ans 3:

Net cost $150 \times 80\% = 120$

or

$150 \times 20\% = 30$

$150 - 30 = 120$

Ans 4:-

complement of 20% or 0.2 is 0.8

complement of 10% or 0.1 is 0.9

$150 (0.8 \times 0.9)$

$150 \times (0.72) = \$108$

Ans 5: List Price $120

$120 \times (0.8 \times 0.9)$

$120 \times (0.72) = 86.4$

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"Assignment 1"

Ans 1:- 25 + 60 = 85

Ans 2:- Total cost 1080

Total Portion 4

$\frac{1080}{4} = 270$

Heat $270 \times 3 = 810$

Light $270 \times 1 = 270$

Ans 3:- Total bonus 540

Ratio 7:4:2:5

$\frac{540 \times 7}{18} = 210$

$\frac{540 \times 4}{18} = 120$

$\frac{540 \times 2}{18} = 60$

$\frac{540 \times 5}{18} = 150$

Ans 4:- Let Sons age is x years

Father is 4 times older the his son

hence father age will 4x.

In 24 years he will be twice as old as his son. After 24 years their age will be:

Son age = x + 24

Fathers age = 4x + 24

$4x + 24 = 2(x + 24)$

solving the equation

$4x + 24 = 2x + 48$

$4x - 2x = 48 - 24$

$2x = 24$

$x = 12$

The son Present age 12 years

Fathers age is $4x = 4 \times 12 = 48$ years

Ans 5:- Let girl be x and boy be y.

$x + y = 26$

$x = 26 - y$

3 years ago

boy was $y - 3$

girl was $x - 3$

since boys was 4 times age of girl.

$x-3 = 4(y-3)$

$x-3 = 4y-12$

Since $x = 26-y$

$(26-y)-3 = 4y-12$

$32-y = 4y-12$

$23+12 = 4y+y$

$35 = 5y$

$y = 7$

$x = 26-7$

$x = 19$

Hence girl is 19 years and boy is 7 years

Ans 6:- say the numbers are x and y

We know that

$x+y = 84$

and

$x = 12+y$

So then, replace the x in the first line with its equalent $(12+y)$ from the second line and solve for y.

$(12+y)+y = 84$

$12+2y = 84$

$6+y = 42$

$y = 42-6 = 36$

So $y = 36$, and $x = 12+y = 12+36 = 48$

The two number are 36 and 48.

Ans 7:- Net cost $150 \times 80\% = 120$

or

$150 \times 20\% = 30$

$150 - 30 = 120$

Ans 8:- Complement of 20% or 0.2 is 0.8

Complement of 10% or 0.1 is 0.9

$150(0.8 \times 0.9)$

$150 \times 0.72 = \$108$

Ans 9:- Selling Price $= 18.75$

cost $= 15$

M.up based on cost $= 3.75$

Percentage Markup based on cost

$$\frac{3.75}{15} \times 100\% = 25\%$$

Ans 10:-

Selling Price $3.38

Cost $2.60

Mark up on cost = $0.78

Mark up percentage on cost =

$$\frac{0.78}{2.6} \times 100\% = 30\%$$

Ans 11:-

Cost 4.50

m.up 26%

(a) selling price = $4.50 \times 126\% = 5.67$

(c) Mark up = 1.17

(b) Selling Price %age $\frac{1.17}{4.50} \times 100\% = 26\%$