

Ar Dsls

$$\begin{aligned} \text{Cost Price} &= \$12 \\ \text{Markup} &= \$7.20 \end{aligned}$$

Find Markup Percent on cost also
Find Selling Price.

$$\text{Selling price} = \text{Cost} + \text{Markup}$$

$$= 12 + 7.20$$

$$\text{Selling price} = 18.20$$

$$\text{Markup percent} = \frac{\text{cost} - \text{Markup}}{\text{cost}} \times 100$$

$$= \frac{12 - 7.20}{12} \times 100$$

$$= 4.8 / 12 \times 100$$

$$\text{Markup percent} = 0.4 \times 100 = 40\%$$

3^o Simplify by using exponential laws

$$\frac{x^{-3}}{x^{-1/2}} \times \frac{x}{x^{3/4}y^{-2}} \div \frac{xy^{-3}}{y^{1/2}}$$

$$= \frac{x^{-3}}{x^{-1/2}} + \frac{x}{x^{3/4}y^{-2}} - \frac{xy^{-3}}{y^{1/2}}$$

$$= (x^{-3} - x^{-1/2}) + (x - x^{3/4}y^{-2}) - (xy^{-3} - y^{1/2})$$

$$= x^{-3} - x^{-1/2} + x - x^{3/4} + y^{-2} - (xy^{-3} - y^{1/2})$$

$$= x^{-3} - x^{-1/2} + x - x^{3/4} + y^{-2} - (x + y^{-3} - y^{1/2})$$

$$= x^{-3} - \frac{1}{x^2} + x - \cancel{x}^{3/4} + \frac{1}{y^2} - x - y^{-3} - \frac{1}{y^2}$$

$$= x^{-3} - \frac{1}{x^2} + x - x^{3/4} - \cancel{x} + \frac{1}{y^2} - \frac{1}{y^3} - \frac{1}{y^2}$$

$$= \frac{1}{x^3} - \frac{1}{x^2} - x^{3/4} + \frac{1}{y^2} - \frac{1}{y^3} - \frac{1}{y^2}$$

$$= \frac{1}{x^3} - \frac{1}{x^2} - x^{3/4} - \frac{1}{y^3}$$

$$= \frac{x^2 - x^3 - x^{3/4} \cdot x^3 \cdot x^2}{x^3 x^2} - \frac{1}{y^3}$$

$$= \frac{x^2 - x^3 - x^{3/4} x^3 x^2}{x^{3+2}} - \frac{1}{y^3}$$

$$= \frac{x^2 + x^2 + x^3 - x^3 - x^{3/4}}{x^5} - \frac{1}{y^3}$$

$$= \frac{x^{2+2} - x^{3/4}}{x^5} - \frac{1}{y^3}$$

$$= \frac{x^4 - x^{3/4}}{x^5} - \frac{1}{y^3}$$

$$= \frac{x^4 - x^{3/4}}{x^5} - \frac{1}{y^3}$$

Q3: → (b) Find the value of x by using logarithmic laws

$$x^3 = \frac{7^3 \times (0.4500)^2}{0.0004 \times (0.0205)^4}$$

Taking log on both sides

$$\log x^3 = \log \left[\frac{7^3 \times (0.4500)^2}{0.0004 \times (0.0205)^4} \right]$$

$$3 \log x = \log (7^3 \times (0.4500)^2) - \log \{ (0.0004 \times (0.0205)^4) \}$$

$$= \log 7^3 + \log (0.4500)^2 - (\log (0.0004) + \log (0.0205)^4)$$

$$= 3 \log 7 + 2 \log (0.4500) - \log (0.0004) - 4 \log (0.0205)$$

$$= 3(0.8450) + 2(-0.3467) - (-3.3979) - 4(-1.6882)$$

$$3 \log x = 2.535 + (-0.6934) + 3.3979 + 6.7528$$

$$3 \log x = 2.535 - 0.6934 + 3.3979 + 6.7528$$

$$3 \log x = 11.9923$$

$$\log x = 11.9923 \div 3$$

$$\log x = 3.9974$$

Taking Anti log

$$\text{Antilog} (\log x) = 3.9974$$

~~9940~~

$$x = 9940$$

$$4) \textcircled{b} \quad U = \{1, 3, 5, 7, \dots, 23\}$$

$$A = \{3, 6, 9, 12, 15, 18\}$$

$$B = \{5, 10, 15, 20\}$$

$$C = \{3, 6, 9, 12, 15, 18\}$$

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

sl. L.H.S

$$A \cap (B \cup C)$$

$$(B \cup C) = \{5, 10\} \cup \{3, 6, 9, 12, 15, 18\}$$

$$= \{3, 5, 6, 9, 10, 12, 15, 18\}$$

Now \cap

$$A \cap (B \cup C) = \{3, 6, 9, 12, 15, 18\} \cap \{3, 5, 6, 9, 10, 12, 15, 18\}$$

$$A \cap (B \cup C) = \{3, 6, 9, 12, 15, 18\}$$

Now R.H.S

$$(A \cap B) \cup (A \cap C)$$

$$(A \cap B) = \{3, 6, 9, 12, 15, 18\} \cap \{5, 10\}$$

$$= \{\}$$

$$(A \cap C) = \{3, 6, 9, 12, 15, 18\} \cap \{3, 6, 9, 12, 15, 18\}$$
$$= \{3, 6, 9, 12, 15, 18\}$$

Now $(A \cap B) \cup (A \cap C) = \{\} \cup \{3, 6, 9, 12, 15, 18\}$

$$= \{3, 6, 9, 12, 15, 18\}$$

So L.H.S = R.H.S proved

Q5

List price = \$150

Trade discount = 20%

Find net cost.

Trade discount = 20% of list price \$150

$$\begin{aligned}\text{Trade discount price} &= \frac{\text{List Price} \times 20\%}{100} \\ &= \frac{150}{100} \times 20\% \\ &= 1.5 \times 20\%.\end{aligned}$$

$$\text{Trade discount price} = 30$$

$$\begin{aligned}\text{Now Net Cost} &= \text{List Price} - \text{Trade discount price} \\ &= 150 - 30\end{aligned}$$

$$\boxed{\text{Net cost} = 120}$$

5(b) solve the following simultaneous for x and y

$$2x + \frac{1}{3}y = \frac{3}{4} \rightarrow \textcircled{i}$$

$$\frac{1}{5}x - 4y = 7 \rightarrow \textcircled{ii}$$

From eq \textcircled{ii}

$$\frac{1}{5}x - 4y = 7$$

$$\frac{1}{5}x = 7 + 4y$$

$$x = (7 + 4y)5$$

$$x = 35 + 20y \rightarrow \textcircled{iii}$$

Put eq \textcircled{iii} in \textcircled{i}

$$2(35 + 20y) + \frac{1}{3}y = \frac{3}{4}$$

$$70 + 40y + \frac{1}{3}y = \frac{3}{4}$$

$$40y + \frac{1}{3}y = \frac{3}{4} - 70$$

$$\frac{120y + y}{3} = \frac{3 - 280}{4}$$

$$\frac{121y}{3} = \frac{-277}{4}$$

$$121y = \frac{-277}{4} \times 3$$

$$121y = \frac{-831}{4}$$

$$121y = -207.75$$

567 con

$$y = \frac{-207.75}{121}$$

$$\boxed{y = 1.71}$$

put the value of y in eq (ii)

$$\frac{1}{5}x - 4y = 7$$

$$\frac{1}{5}x - 4(1.71) = 7$$

$$\frac{1}{5}x - 6.84 = 7$$

$$\frac{1}{5}x = 7 + 6.84$$

$$\frac{1}{5}x = 13.84$$

$$x = (13.84)5$$

$$\boxed{x = 69.2}$$

So $x = 69.2$ and $y = 1.71$