

## QUESTION

(page 1)

The marked price of a shirt is higher than its cost by \$80. The shirt is sold at a discount of 10% on its marked price. After selling the shirt, the percentage profit is 30%. Find the marked price of the shirt. (4 marks)

## Solution

Let the marked price =  $x$

Let the cost price of the shirt =  $y$

Since  $x > y$  by \$80

$$\Rightarrow x = 80 + y \quad \text{--- (1)}$$

If the shirt is sold with a discount of 10% on  $x$ ,

$$\Rightarrow x = 100\%x - 10\%x = 90\%x = 0.9x \quad \text{--- (2)}$$

substitute eqn (1) into eqn (2), we have;

$$x = 0.9(80 + y) = 72 + 0.9y \quad \text{--- (3)}$$

Recall: Profit =  $x - y$

$$= 72 + 0.9y - y$$

$$\text{Profit} = 72.01y \quad \text{--- (4)}$$

Given: % Profit = 30%

Page (2)

$$\text{Recall that: } \text{profit \%} = \frac{\text{Profit}}{\text{Cost Price}} \quad \text{--- (5)}$$

Substitute eqn (4) and  $y$  for profit and cost price respectively in eqn (5). This gives

$$30\% = \frac{72.01y}{y}$$

$$0.3y = 72.01y$$

$$0.3y + 0.1y = 72$$

$$\Rightarrow y = \frac{72}{0.4} = 180 \quad \text{--- (6)}$$

Substitute eqn (6) into eqn (1) to obtain  $x$

$$\Rightarrow x = 80 + 180 \\ = 260$$

Therefore, the required marked price

$$x = \underline{\underline{\$260}}$$