Assignment 1

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5(b) [ICSE 10 2017] : How much should a man invest in ₹ 50 shares selling at ₹ 60 to obtain an income of ₹ 450, if the rate of dividend declared is 10%? Also find his yield percent, to the nearest whole number.

Solution: Let the number of shares the man buys be x. If the shares are worth r and the dividend is d, then the income is given by $x \cdot r \cdot d$.
The various parameters involved in this question are listed in the table below:

Parameter	Formula	Value
number of shares	x	?
value of shares	r	50
cost of shares	c	60
rate of dividend	d	10%
annual income	$x \cdot r \cdot d$	450
investment	$x \cdot c$	?
yield percent	$\frac{\text{income}}{\text{investment}} \cdot 100$	?

Since the man is investing in ₹ 50 shares with a 10% rate of dividend, here, $d = 0.1$ and $r = 50$. Therefore, the income he gets equals

$$x \cdot 50 \cdot 0.1 = 5x$$

For an income of ₹ 450, we must have

$$5x = 450$$
$$x = 90$$

Therefore, the man purchases 90 shares, and must invest

$$x \cdot c = 90 \cdot 60 = \boxed{\text{₹ } 5400}$$

The yield percent is given by $\frac{\text{income}}{\text{investment}} \cdot 100$ and therefore equals

$$\frac{450}{5400} \cdot 100 = 8.33\% \approx \boxed{8\ \%}$$