



①

Time x_i	Cost y_i
4 hours	Rs 60
8 hours	Rs 100
12 hours	Rs 140
24 hours	Rs 180

$$\frac{x_1}{y_1} = \frac{4}{60} = \frac{1}{15}$$

$$\frac{x_2}{y_2} = \frac{8}{100} = \frac{2}{25}$$

$$\therefore \frac{x_1}{y_1} \neq \frac{x_2}{y_2}$$

\therefore Time and Cost ^{do not} vary directly

②

Parts of red pigment x_i	1	4	7	12	20
Parts of base y_i	8	y_2	y_3	y_4	y_5

x and y are directly proportional

$$\frac{x_1}{y_1} = \frac{x_2}{y_2}$$

$$\frac{1}{8} = \frac{4}{y_2}$$

$$\Rightarrow y_2 = 32$$

$$\frac{x_1}{y_1} = \frac{x_3}{y_3}$$

$$\frac{1}{8} = \frac{7}{y_3}$$

$$\Rightarrow y_3 = 56$$

$$\frac{x_1}{y_1} = \frac{x_4}{y_4}$$

$$\frac{1}{8} = \frac{12}{y_4}$$

$$\Rightarrow y_4 = 96$$

$$\frac{x_1}{y_1} = \frac{x_5}{y_5}$$

$$\frac{1}{8} = \frac{20}{y_5}$$

$$\Rightarrow y_5 = 160$$