Direct and Inverse Variations Ex 10.1 Q4

Answer :

(i) directly

(ii) x and y are said to vary directly with each other if $\frac{x}{y} = k$, where k is a positive number

(iii) because $u = 3v$, u and y vary directly with each other

Direct and Inverse Variations Ex 10.1 Q5

Answer :

Here, x and y vary directly.

$\therefore x = ky$

(i) $x = 2.5$ and $y = 5$

i.e., $2.5 = k \times 5$

$\Rightarrow k = \frac{2.5}{5} = 0.5$

For $y = 8$ and $k = 0.5$, we have :

$x = ky$

$\Rightarrow x = 8 \times 0.5 = 4$

For $y = 12$ and $k = 0.5$, we have :

$x = ky$

$\Rightarrow x = 12 \times 0.5 = 6$

For $x = 15$ and $k = 0.5$, we have :

$x = ky$

$\Rightarrow 15 = 0.5 \times y$

$\Rightarrow y = \frac{15}{0.5} = 30$

(ii) $x = 5$ *and* $y = 8$

i.e., $5 = k \times 8$

$\Rightarrow k = \frac{5}{8} = 0.625$

For $y = 12$ and $k = 0.625$, we have :

$x = ky$

$\Rightarrow x = 12 \times 0.625 = 7.5$

For $x = 10$ and $k = 0.625$, we have:

$x = ky$

$\Rightarrow 10 = 0.625 \times y$

$\Rightarrow y = \frac{10}{0.625} = 16$

For $x = 35$ and $k = 0.625$, we have:

$x = ky$

$\Rightarrow 35 = 0.625 \times y$

$\Rightarrow y = \frac{35}{0.625} = 56$

For $x = 25$ and $k = 0.625$, we have:

$x = ky$

$\Rightarrow 25 = 0.625 \times y$

$\Rightarrow y = \frac{25}{0.625} = 40$

For $y = 32$ and $k = 0.625$, we have:

$x = ky$

$\Rightarrow x = 0.625 \times 32 = 20$

$\left(\text{iii}\right)\ x = 6$ and $y = 15$

i.e., $6 = k \times 15$

$\Rightarrow k = \frac{6}{15} = 0.4$

For $x = 10$ and $k = 0.4$, we have:

$y = \frac{10}{0.4} = 25$

For $y = 40$ and $k = 0.4$, we have:

$x = 0.4 \times 40 = 16$

For $x = 20$ and $k = 0.4$, we have:

$y = \frac{20}{0.4} = 50$

$\left(\text{iv}\right)\ x = 4$ and $y = 16$

i.e., $4 = k \times 16$

$\Rightarrow k = \frac{4}{16} = \frac{1}{4}$

For $x = 9$ and $k = \frac{1}{4}$, we have:

$9 = ky$

$\Rightarrow y = 4 \times 9 = 36$

For $y = 48$ and $k = \frac{1}{4}$, we have:

$x = ky$

$= \frac{1}{4} \times 48 = 12$

For $y = 36$ and $k = \frac{1}{4}$, we have:

$x = ky$

$= \frac{1}{4} \times 36 = 9$

For $x = 3$ and $k = \frac{1}{4}$, we have:

$x = ky$

$\Rightarrow 3 = \frac{1}{4} \times y$

$\Rightarrow y = 12$

For $y = 4$ and $k = \frac{1}{4}$, we have :

$x = ky$

$= \frac{1}{4} \times 4 = 1$

$\left(\mathrm{v}\right)$ $x = 5$ and $y = 20$

i.e., $5 = k \times 20$

$\Rightarrow k = \frac{5}{20} = \frac{1}{4}$

For $x = 3$ and $k = \frac{1}{4}$, we have :

$3 = \frac{1}{4} \times y$

$\Rightarrow y = 4 \times 3 = 12$

For $x = 9$, $k = \frac{1}{4}$, we have :

$x = ky$

$\Rightarrow 9 = \frac{1}{4} \times y$

$\Rightarrow y = 9 \times 4 = 36$

********** END **********