[12-01-30A-T]

Direct proportion

For each of the following, determine if the relationship is one of direct proportion. If it is, write the function in the form $y = a\,x$. Otherwise, state that the relationship is "not direct proportion".

[1] $\begin{pmatrix} 1 & \longrightarrow & 2 \\ 2 & \longrightarrow & 4 \\ 3 & \longrightarrow & 6 \\ 4 & \longrightarrow & 8 \\ 5 & \longrightarrow & 10 \\ 6 & \longrightarrow & 12 \end{pmatrix}$

[2] $\begin{pmatrix} 2 & \longrightarrow & 6 \\ 3 & \longrightarrow & 9 \\ 4 & \longrightarrow & 12 \\ 5 & \longrightarrow & 15 \\ 6 & \longrightarrow & 18 \end{pmatrix}$

[3] $\begin{pmatrix} 2 & \longrightarrow & 4 \\ 5 & \longrightarrow & 10 \\ 8 & \longrightarrow & 16 \\ 11 & \longrightarrow & 22 \\ 14 & \longrightarrow & 28 \end{pmatrix}$

[4] $\begin{pmatrix} 1 & \longrightarrow & \frac{1}{2} \\ 2 & \longrightarrow & 1 \\ 3 & \longrightarrow & \frac{3}{2} \\ 4 & \longrightarrow & 2 \\ 5 & \longrightarrow & \frac{5}{2} \\ 6 & \longrightarrow & 3 \end{pmatrix}$

[5] $\begin{pmatrix} 1 & \longrightarrow & \frac{1}{10} \\ 2 & \longrightarrow & \frac{1}{5} \\ 3 & \longrightarrow & \frac{3}{10} \\ 4 & \longrightarrow & \frac{2}{5} \\ 5 & \longrightarrow & \frac{1}{2} \\ 6 & \longrightarrow & \frac{3}{5} \end{pmatrix}$

[6] $\begin{pmatrix} 1 & \longrightarrow & 1 \\ 2 & \longrightarrow & 2 \\ 3 & \longrightarrow & 3 \\ 4 & \longrightarrow & 4 \\ 5 & \longrightarrow & 5 \\ 6 & \longrightarrow & 6 \end{pmatrix}$

[7] $\begin{pmatrix} -2 & \longrightarrow & 12 \\ -\frac{3}{2} & \longrightarrow & 9 \\ -1 & \longrightarrow & 6 \\ -\frac{1}{2} & \longrightarrow & 3 \\ 0 & \longrightarrow & 0 \\ \frac{1}{2} & \longrightarrow & -3 \\ 1 & \longrightarrow & -6 \end{pmatrix}$

[8] $\begin{pmatrix} -3 & \longrightarrow & -1 \\ -2 & \longrightarrow & -\frac{2}{3} \\ -1 & \longrightarrow & -\frac{1}{3} \\ 0 & \longrightarrow & 0 \\ 1 & \longrightarrow & \frac{1}{3} \\ 2 & \longrightarrow & \frac{2}{3} \\ 3 & \longrightarrow & 1 \end{pmatrix}$

Answers

[1] $y = 2\,x$, [2] $y = 3\,x$, [3] $y = 2\,x$, [4] $y = \frac{1}{2}\,x$, [5] $y = \frac{1}{10}\,x$, [6] $y = x$,

[7] $y = -6\,x$, [8] $y = \frac{1}{3}\,x$