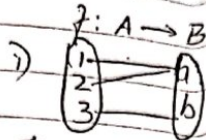


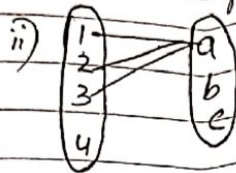
Calculus:

Function (f): is a rule which associates every element of set A to a unique element of set B.

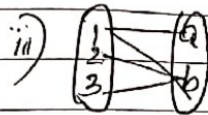
Ex



\therefore It is a function.



\therefore It is not a function because 4 does not have an image.



\therefore It is not a function as 1 does not have a unique image.

iv) $f(x) = 2x + 3$ is a function on Natural nos.

v) $x = f(p)$ is a demand function, where $x \rightarrow$ quantity
 $p \rightarrow$ price

Limit of a function:

$f(x)$ is said to have a limit as $x \rightarrow a$ if $\lim_{x \rightarrow a^+} f(x) = f(a) = \lim_{x \rightarrow a^-} f(x)$

Properties of limits

$$\bullet \lim_{x \rightarrow a} (f(x) \pm g(x)) = \lim_{x \rightarrow a} f(x) \pm \lim_{x \rightarrow a} g(x)$$

$$\bullet \lim_{x \rightarrow a} (f(x) \cdot g(x)) = \lim_{x \rightarrow a} f(x) \cdot \lim_{x \rightarrow a} g(x)$$

$$\bullet \lim_{x \rightarrow a} \left[\frac{f(x)}{g(x)} \right] = \frac{\lim_{x \rightarrow a} f(x)}{\lim_{x \rightarrow a} g(x)}$$



On the average, each day, a person saves 500 points. How many days will it take to save 5000 points?

They saved 5000 points

4 points, 50 rub	8 points, 40 rub
$\begin{array}{r} 4 \\ 50 \\ \hline 200 \end{array}$ <p>200 points</p>	$\begin{array}{r} 8 \\ 40 \\ \hline 320 \end{array}$ <p>320 points</p>
$\begin{array}{r} 200 \\ + 320 \\ \hline 520 \end{array}$ <p>520 points</p>	

$$\begin{array}{r} 371 \text{ R } 11 \\ 27 \overline{) 8954} \\ \underline{810} \\ 854 \\ \underline{810} \\ 44 \\ \underline{45} \\ -1 \end{array}$$