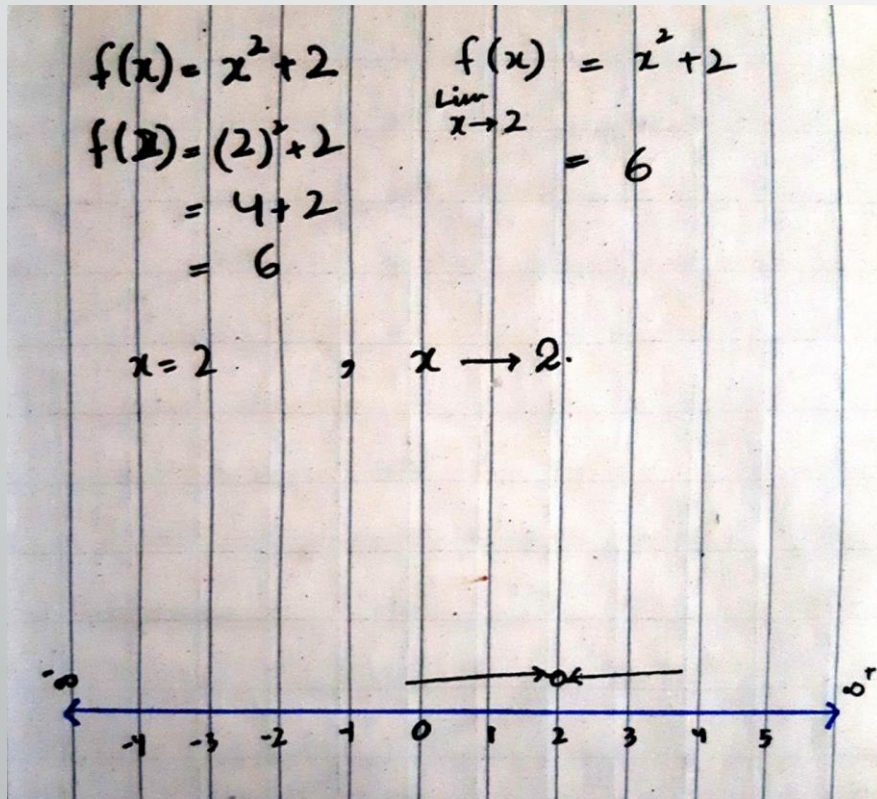




Understanding Limits

Introduction to Limits

- If $f(x)$ is a function of x and c, L are the real numbers, then L is the limit of a function $f(x)$ as x approaches to c



$$\lim_{x \rightarrow c} f(x) = L$$

Values of x	1	1.5	1.99	2.001	2.5	3	3.25	4
Values of $f(x)$	3	4.25	5.96	6.004	8.25	11	12.56	18

Undefined Limits

Handwritten mathematical work on grid paper:

$\lim_{x \rightarrow 0^+} \frac{1}{x}$

$\frac{1}{+0} = \infty$

A number line diagram with arrows at both ends. A tick mark is labeled '0' and another tick mark to its right is labeled 'x'. Below the line, the expression $0 < x$ is written.

Values of x	0.1	0.01	0.001	0.0001	0.00001
Values of $1/x$	10	100	1000	10000	100000

Undefined Limits Cont.....

Handwritten mathematical work on grid paper. The top part shows the limit expression: $\lim_{x \rightarrow 0^-} \frac{1}{x}$. Below this, the expression $\frac{1}{-0} = -\infty$ is written. At the bottom, a number line is drawn with a point marked x to the left of 0 , and the inequality $x < 0$ is written below the line.

Values of x	-0.1	-0.01	-0.001	-0.0001	-0.00001
Values of $1/x$	-10	-100	-1000	-10000	-100000

Undefined Limits cont..

$$\lim_{x \rightarrow 0} \frac{1}{x} \text{ is undefined}$$

