

HOMEWORK 1

1. Find the solutions of the following equation :

$$|x - 3| + x = 4 .$$

2. Let r be the line through the points $A = (-1, 2)$ and $B = (1, 1)$.

i) What is the slope of r ?

ii) Write an equation for r .

iii) Find the intersection of r with the x - and y -axis.

iv) Write the equation of the line s perpendicular to r through $(2, 1)$.

v) Find the intersection between r and s .

3. Compute the following limits :

i) $\lim_{x \rightarrow -1^+} \lfloor x \rfloor$

iii) $\lim_{x \rightarrow 1^-} \lceil x \rceil + \lfloor x \rfloor$

v) $\lim_{x \rightarrow \frac{1}{2}} \lceil x \rceil$

ii) $\lim_{x \rightarrow -1^+} \lceil x \rceil$

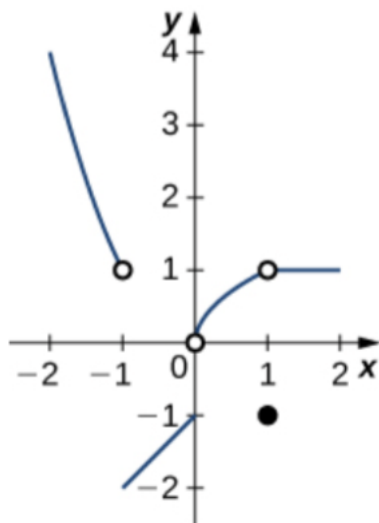
iv) $\lim_{x \rightarrow 0^-} |x|$

vi) $\lim_{x \rightarrow -\frac{1}{2}} \lfloor |x| \rfloor$

4. Using a calculator and a table of values, compute (if it exists)

$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x^2 + x - 6} .$$

5. Consider the function $f(x)$ graphed below.



Find the following limits or explain why they do not exist

i) $\lim_{x \rightarrow -1^-} f(x)$

ii) $\lim_{x \rightarrow 0} f(x)$

iii) $\lim_{x \rightarrow 1} f(x)$

iv) $\lim_{x \rightarrow 2^-} f(x)$

Is the function defined at $x = 1$?

If yes, what is $f(1)$?