

## 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  $s$ .

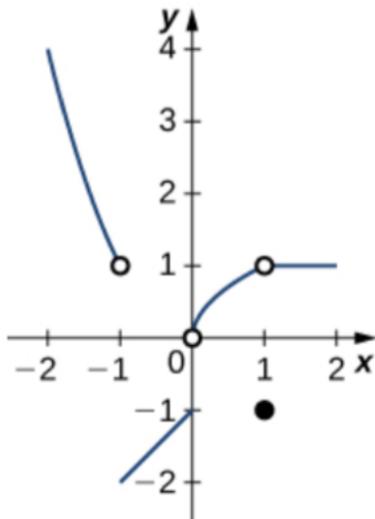
3. Compute the following limits :

- |  |   |   |
|--|---|---|
| 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  $f(1)$ ?