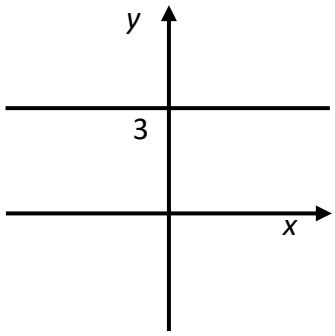
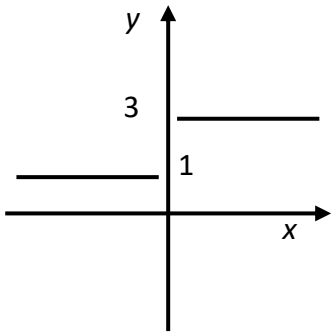
ALGEBRA EXAMPLE 5

Which of the graphs below best represents the function $y = \frac{x}{|x|} + 2$?

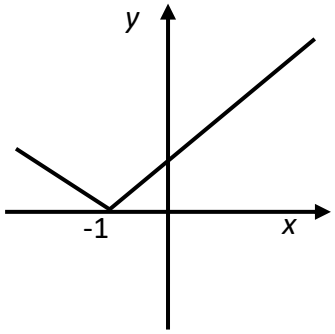
(A)



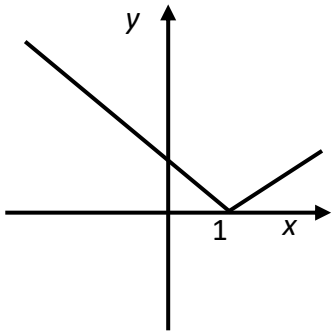
(B)



(C)



(D)



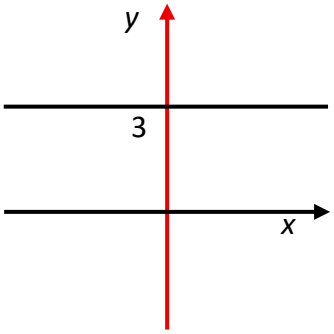
SOLUTION

Graph A

If $x = 0$, then $y = \frac{x}{|x|} + 2$ is not defined.

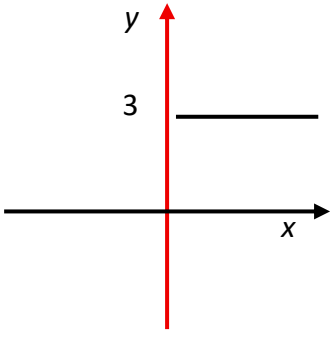
So, y cannot be equal to 3.

Graph A is incorrect.

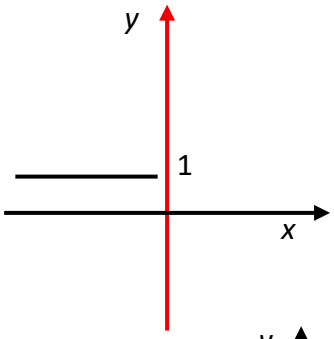


Graph B

If $x > 0$, then $y = 3$.



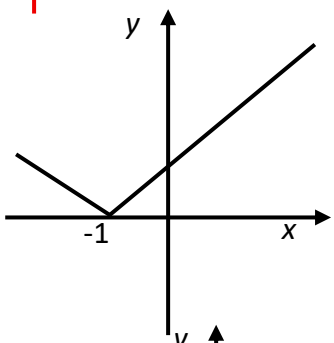
If $x < 0$, then $y = 1$.



So, Graph B is correct.

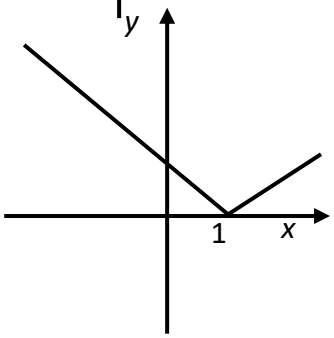
Graph C
If $x = -1$, then $y = 1$.

So, Graph C is incorrect.



Graph D
If $x = 1$, then $y = 3$.

So, Graph D is incorrect.



The correct answer is B.