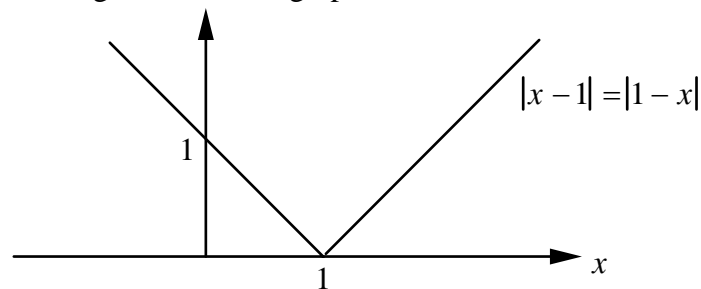


Complete solutions to Exercise 3(f)
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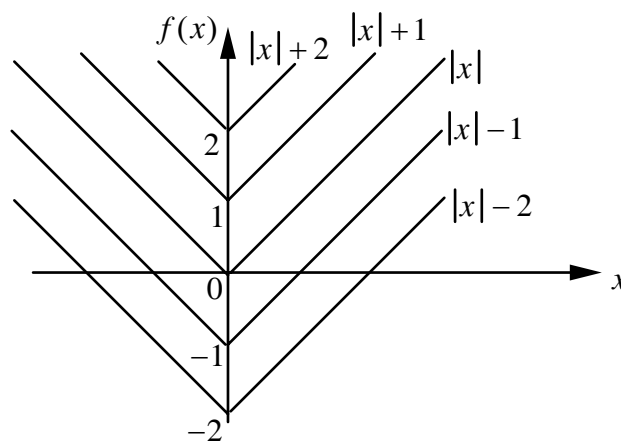
1. Using (3.7):

x	$ 1-x $	$ x-1 $
-3	$ 1-(-3) = 4 = 4$	$ -3-1 = -4 = 4$
-2	$ 1-(-2) = 3 = 3$	$ -2-1 = -3 = 3$
-1	$ 1-(-1) = 2 = 2$	$ -1-1 = -2 = 2$
0	$ 1-0 = 1$	$ 0-1 = -1 = 1$
1	$ 1-1 = 0$	$ 1-1 = 0$
2	$ 1-2 = -1 = 1$	$ 2-1 = 1$
3	$ 1-3 = -2 = 2$	$ 3-1 = 2$

Thus $|1-x|$ and $|x-1|$ gives the same graph and it can be shown that $|x-1| = |1-x|$:



2. The graph of $|x|$ is shifted up or down according to the value of c to give the graph of $|x| + c$.



3. The graph of $|x-3|+1$ has the same shape as the graph of $|x|$ but it has been translated to the right by 3 units, $|x-3|$, and shifted up by 1 unit, $|x-3|+1$. Where does the graph cross the vertical axis?

At $x=0$. Substituting $x=0$ into $|x-3|+1$ gives:

$$|0-3|+1 = |-3|+1 = 3+1 = 4$$

The graph crosses the vertical axis at 4.

(3.7)
$$x = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

