2.1) The modulus function

Worked example	Your turn
If $f(x) = \|4x + 5\| - 6$, find: a) $f(5)$	If $f(x) = \|2x - 3\| + 1$, find: a) $f(5)$ 8
b) $f(-2)$	b) $f(-2)$ -6
c) $f(1)$	c) $f(1)$ 2

Worked example

Sketch:

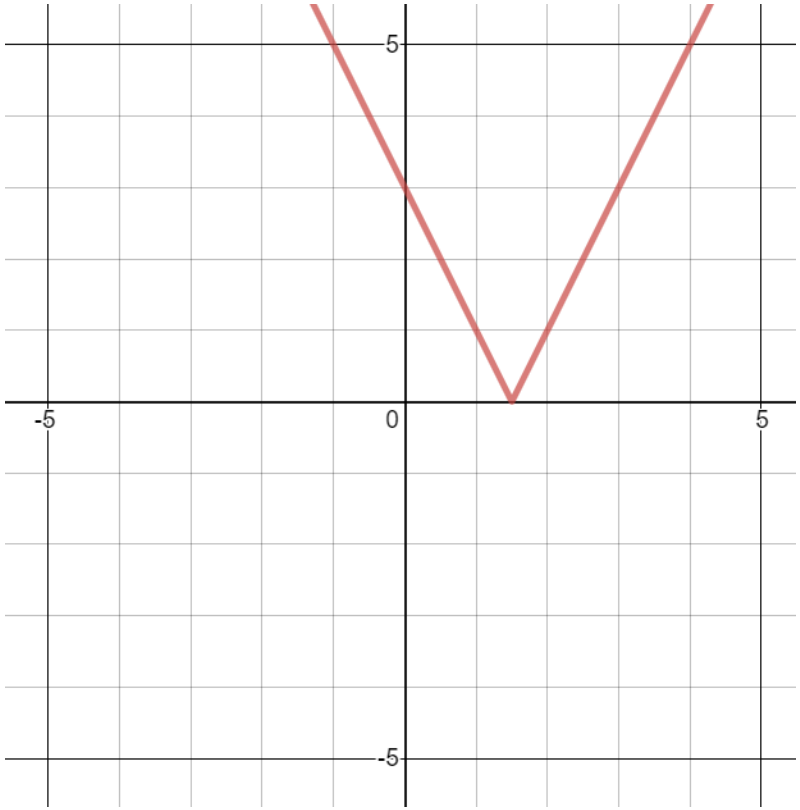
$$y = |3x - 2|$$

$$y = |2 - 3x|$$

Your turn

Sketch:

$$y = |2x - 3|$$



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Worked example

Solve:

$$|3x - 2| = 7$$

$$|2 - 3x| = 6$$

Your turn

Solve:

$$|2x - 3| = 5$$

$x = -1, x = 4$

Worked example

Solve:

$$|5x - 2| = 3 - \frac{1}{3}x$$

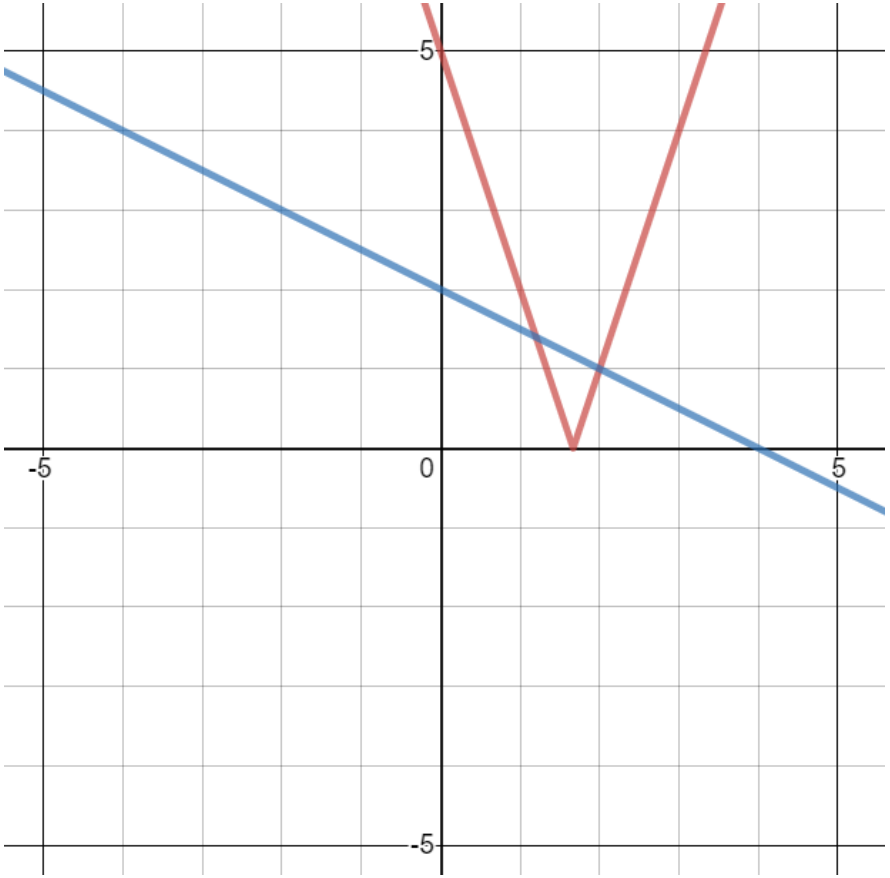
$$|5 - 3x| = \frac{1}{2}x + 2$$

Your turn

Solve:

$$|3x - 5| = 2 - \frac{1}{2}x$$

$$x = \frac{6}{5}, x = 2$$



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Worked example

Solve:

$$|5x - 2| < 3 - \frac{1}{3}x$$

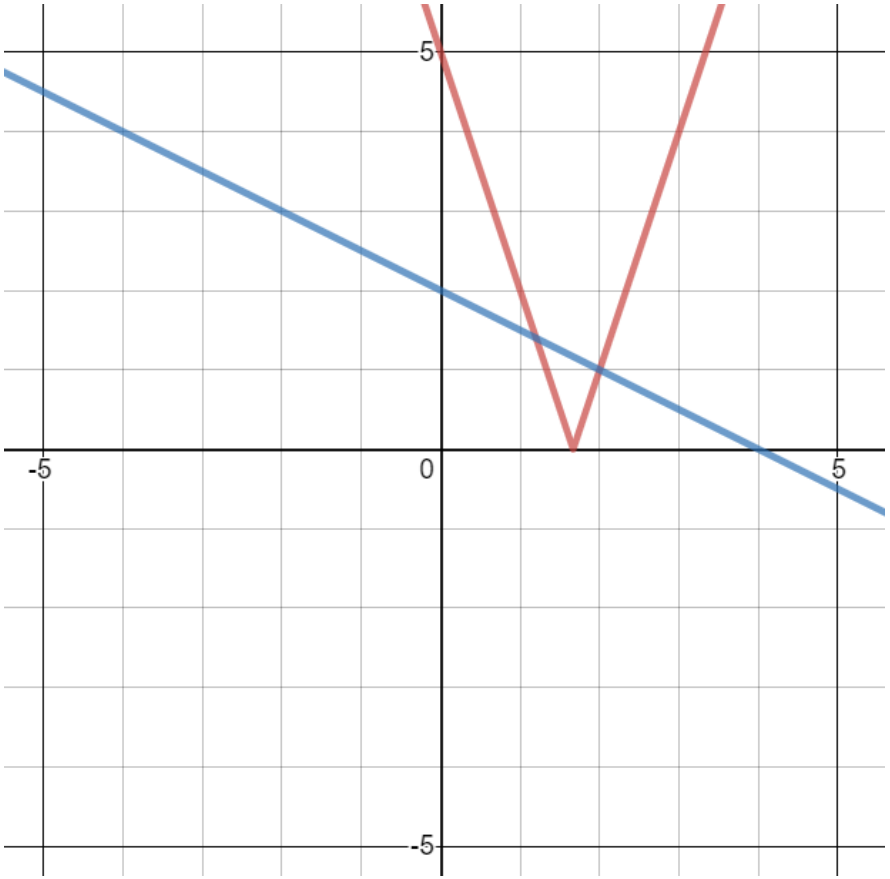
$$|5 - 3x| \leq \frac{1}{2}x + 2$$

Your turn

Solve:

$$|3x - 5| < 2 - \frac{1}{2}x$$

$$\frac{6}{5} < x < 2$$



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Worked example

Solve:

$$|5x - 2| > 3 - \frac{1}{3}x$$

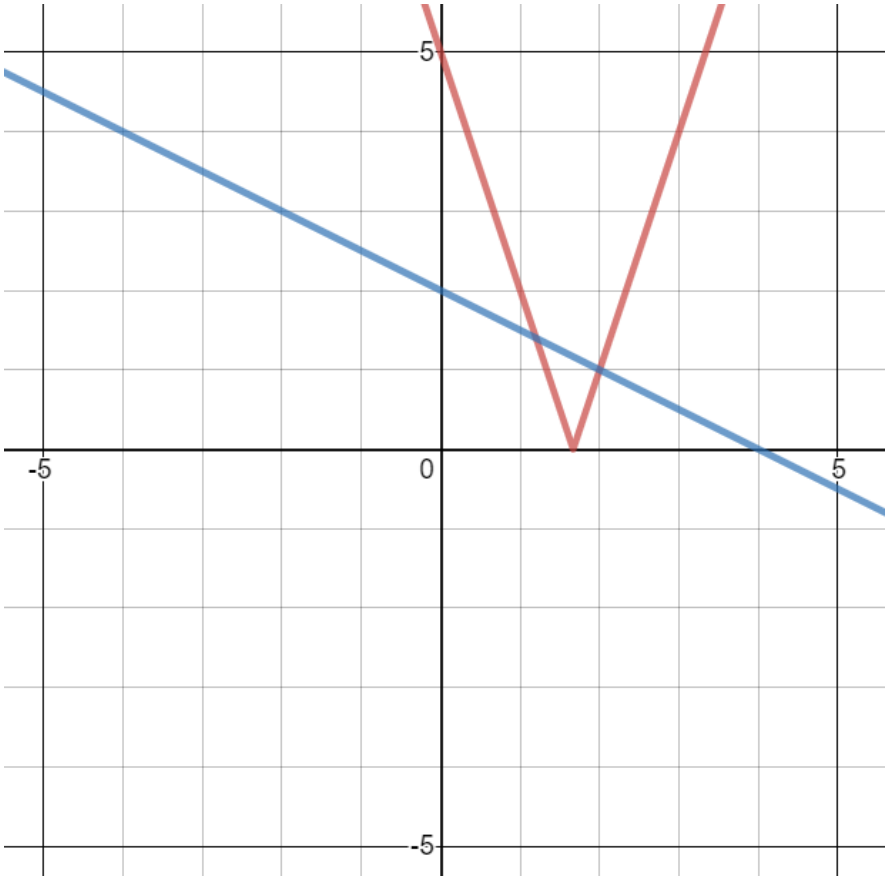
$$|5 - 3x| \geq \frac{1}{2}x + 2$$

Your turn

Solve:

$$|3x - 5| > 2 - \frac{1}{2}x$$

$$x < \frac{6}{5} \cup x > 2$$



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Worked example

Solve:

$$|x + 3| = 5x + 2$$

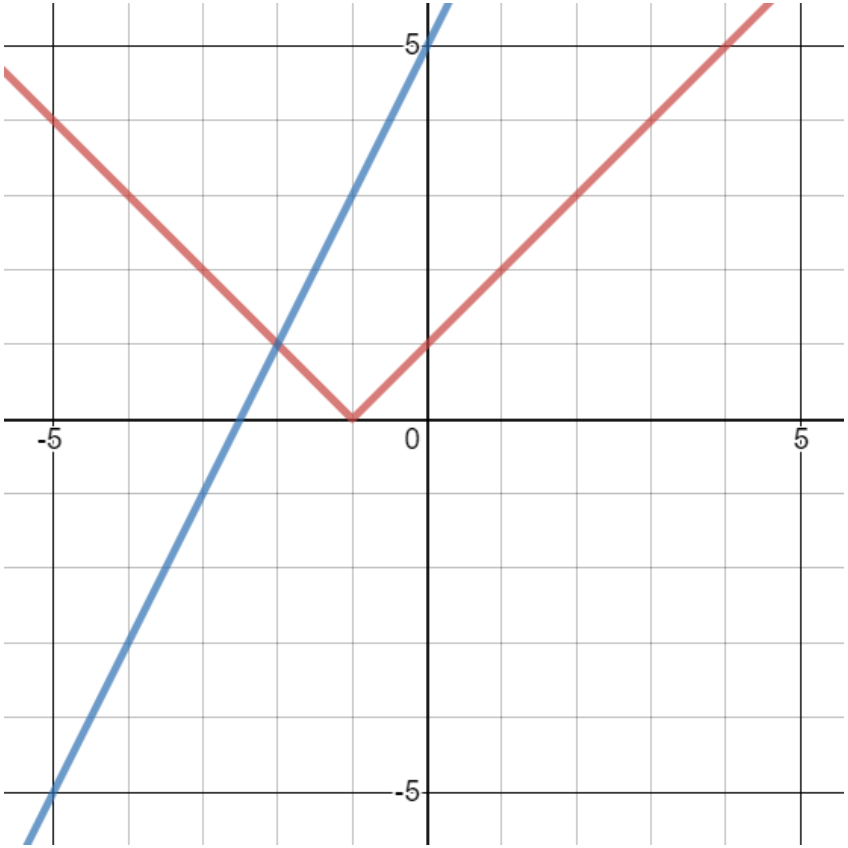
$$|x + 3| = x + 2$$

Your turn

Solve:

$$|x + 1| = 2x + 5$$

$x = -2$



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