

3. For x near 3 we have $|5 - 2x| = 2x - 5$, $|x - 2| = x - 2$, $|x - 5| = 5 - x$, and $|3x - 7| = 3x - 7$. Thus

$$\begin{aligned}\lim_{x \rightarrow 3} \frac{|5 - 2x| - |x - 2|}{|x - 5| - |3x - 7|} &= \lim_{x \rightarrow 3} \frac{2x - 5 - (x - 2)}{5 - x - (3x - 7)} \\ &= \lim_{x \rightarrow 3} \frac{x - 3}{4(3 - x)} = -\frac{1}{4}.\end{aligned}$$