September 13, 2017

Definition of Absolute Value

$$|x| = \begin{cases} x, & \text{if } x \geq 0 \\ -x, & \text{if } x < 0 \end{cases}$$

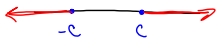
$x = -4$

$|-4| = -(-4) = 4$

* $|x| < c$ / $|x| \leq c$

① $x < c$ ② $x > -c$

$|x| > c$



$(-\infty, -c) \cup (c, \infty)$

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1.8 #35) $\left|\frac{x-2}{3}\right| < 2$

① $3\left(\frac{x-2}{3} < 2\right)$

$3\left(\frac{x-2}{3} < 2\right)$

$x - 2 < 6$

$x < 8$

② $3\left(\frac{x-2}{3} > -2\right)$

$x - 2 > -6$

$x > -4$

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1.4 #43) ② ← 2 solutions

$10y^2 - 16y + 5 = 0$

$$y = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(10)(5)}}{2(10)}$$

$$= \frac{16 \pm \sqrt{256 - 200}}{20}$$

$$= \frac{16 \pm \sqrt{56}}{20}$$

$$= \frac{16 \pm \sqrt{4 \cdot 14}}{20}$$

$$= \frac{16 \pm 2\sqrt{14}}{20}$$

$$= \frac{16}{20} \pm \frac{2\sqrt{14}}{20}$$

$$= \frac{4}{5} \pm \frac{\sqrt{14}}{10}$$

$y = \left(\frac{4}{5} + \frac{\sqrt{14}}{10}, \frac{4}{5} - \frac{\sqrt{14}}{10}\right)$

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