4.3.5 - Absolute Value I

4.3 - Algebra - Inequalities

Leaving Certificate Mathematics

Higher Level ONLY

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What it means: Distance from 0 on the number line.

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What it means: Distance from 0 on the number line.

Also called **modulus**.

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$$(x + 5)(x + 1) = 0$$

Example 1

Q. Solve for x if $|x + 3| = 2$.

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\begin{aligned}
|x + 3| &= 2 \\
(|x + 3|)^2 &= 2^2 \\
(x + 3)^2 &= 4 \\
x^2 + 6x + 9 &= 4 \\
x^2 + 6x + 5 &= 0 \\
(x + 5)(x + 1) &= 0
\end{aligned}
$$

$$
x + 5 = 0
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$$x + 5 = 0$$
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$$x + 5 = 0 \qquad\qquad\qquad x + 1 = 0$$
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$$
\begin{aligned}
x + 5 &= 0 & x + 1 &= 0 \\
x &= -5 & x &= -1
\end{aligned}
$$

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Answer:

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$$x + 5 = 0 \qquad\qquad x + 1 = 0$$
$$x = -5 \qquad\qquad x = -1$$

$$\therefore x = -5, -1$$