

1 Is $x = 8$ a solution to the equation $9x + 7 = 79$?

Yes

No

$$\begin{aligned} 9 \cdot 8 + 7 &\stackrel{?}{=} 79 \\ 72 + 7 &\stackrel{?}{=} 79 \\ 79 &= 79 \text{ yes!} \end{aligned}$$

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2 Is $x = 10$ a solution to the equation $x + 4 = 14x$?

Yes

No

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3 Is $x = 9$ a solution to the equation $x - 1 = x - 8$?

Yes

No

$$\begin{array}{l} 9 - 1 = 9 - 8 \\ 8 = 1 \end{array}$$

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4 Is $x = 7$ a solution to the equation $2x - 3 = 53 - 6x$?

Yes

No

$$\begin{array}{l} 2 \cdot 7 - 3 = 53 - 6 \cdot 7 \\ 14 - 3 = 53 - 42 \\ 11 = 11 \end{array}$$

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- 5 Find a number that is a solution to the equation $x + 3 = 7$.**

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- 6 Is $x = 0$ a solution to the equation $x(2x - 1) = 0$?**

Yes

No

$$0(2 \cdot 0 - 1) \stackrel{?}{=} 0$$

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7 Is $x = 1$ a solution to the equation $x(2x - 1) = 0$?

Yes

No

$$\begin{aligned}1(2 \cdot 1 - 1) &= 0 \\1(2 - 1) &= 0 \\1(1) &= 0 \\1 &= 0 \quad ?? \\ &\text{No!}\end{aligned}$$

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8 Is $x = 1/2$ a solution to the equation $x(2x - 1) = 0$?

Yes

No

$$\begin{aligned}\frac{1}{2}(2 \cdot \frac{1}{2} - 1) &\stackrel{?}{=} 0 \\ \frac{1}{2}(1 - 1) &\stackrel{?}{=} 0 \\ \frac{1}{2}(0) &\stackrel{?}{=} 0 \\ 0 &= 0 \quad \text{Yes!}\end{aligned}$$

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9 Is $x = 0$ a solution to the equation $x(x + 2) = x^3$?

Yes

No

$$\begin{aligned}0(0+2) &\stackrel{?}{=} 0^3 \\0(2) &\stackrel{?}{=} 0 \\0 &= 0 \quad \text{Yes!}\end{aligned}$$

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10 Is $x = 1$ a solution to the equation $x(x + 2) = x^3$?

Yes

No

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11 Is $x = -1$ a solution to the equation $x(x + 2) = x^3$?

Yes

No

$$\begin{aligned} -1(-1+2) &= (-1)^3 \\ -1(1) &= (-1)(-1)(-1) \\ -1 &= 1 \cdot (-1) \\ -1 &= -1 \quad \text{Yes!} \end{aligned}$$

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12 Is $x = 2$ a solution to the equation $x(x + 2) = x^3$?

Yes

No

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Things we learned today:

Equation: Comparing two **expressions** to see if they have the same value.

A Solution (to an equation):

A value for the variable that makes the expressions have the same value.

A value for the variable that makes the equation true.

A value for the variable that makes the equation work.

Some equations have no solutions.

Some equations have only one solution.

Some equations have several solutions.

For some equations, every number is a solution.

A fraction can be a solution to an equation.

A negative number can be a solution to an equation.

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