Wolfram|Alpha Step-by-Step Solution

Wolfram|Alpha Input: 12x(x^2 -2x -8) =0

STEP 1

Solve for x over the real numbers:

$12\,x\,(x^2 - 2\,x - 8) = 0$

STEP 2

Hint: Divide both sides by a constant to simplify the equation.

Divide both sides by 12:

$x\,(x^2 - 2\,x - 8) = 0$

STEP 3

Hint: Find the roots of each term in the product separately.

Split into two equations:

$x = 0$ or $x^2 - 2\,x - 8 = 0$

STEP 4

Hint: Look at the second equation : Factor the left hand side.

The left hand side factors into a product with two terms:

$x = 0$ or $\boxed{(x - 4)\,(x + 2) = 0}$

STEP 5

Hint: Find the roots of each term in the product separately.

Split into two equations:

$x = 0$ or $\boxed{x - 4 = 0 \text{ or } x + 2 = 0}$

STEP 6

Hint: Look at the second equation: Solve for x.

Add 4 to both sides:

$x = 0$ or $\boxed{x = 4}$ or $x + 2 = 0$

STEP 7

Hint: Look at the third equation: Solve for x.

Subtract 2 from both sides:

Answer:

$x = 0$ or $x = 4$ or $\boxed{x = -2}$