

Solving Cubic (and Other Power) Functions

Solve: $12(x + 3)^3 - 15 = 6$

$$12(x + 3)^3 - 15 = 6$$

$$12(x + 3)^3 = 21$$

Add 15

$$(x + 3)^3 = 1.75$$

Divide by 12

$$\sqrt[3]{(x + 3)^3} = \sqrt[3]{1.75}$$

Cube root both sides.

$$x + 3 = 1.205$$

Simplify.

$$x = -1.795$$

Subtract 3

$$\text{Solve: } \frac{-1}{3} (4 - 2x)^4 - 2 = -12$$

$$\frac{-1}{3} (4 - 2x)^4 - 2 = -12$$

$$\frac{-1}{3} (4 - 2x)^4 = -10 \quad \textit{Add 2}$$

$$(4 - 2x)^4 = 30 \quad \textit{Multiply by -3}$$

$$\sqrt[4]{(4 - 2x)^4} = \sqrt[4]{30} \quad \textit{4}^{\text{th}} \textit{ root both sides.}$$

$$4 - 2x = 2.340 \quad \textit{Simplify.}$$

$$-2x = -1.660 \quad \textit{Subtract 4}$$

$$x = .830 \quad \textit{Divide by -2}$$