

(A) $\sqrt{2x-4} - 12 = 0$ *isolate radical first

$\sqrt{2x-4} = 12$

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

$2x-4 = 144$

$2x = 148$

$x = 74$

$(\sqrt{2x-4})^2 = (12)^2$

$2x-4 = 144$

$2x = 148$

$x = 74$

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(B) $\sqrt[3]{3x+5} - 4 = 0$

rewrite w/ rational exponents \rightarrow

$\sqrt[3]{3x+5} = 4$

$(3x+5)^{\frac{1}{3} \cdot 3} = 4^{\frac{3}{1}}$

$3x+5 = 64$

$3x = 59$

$x = 59/3$

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(C) $4\sqrt{(x-1)^3} = 27$
 $((x-1)^{3/4})^{4/3} = 27^{4/3}$
 $x-1 = \sqrt[3]{27^4}$
 $x-1 = 3^4$
 $x-1 = 81 \rightarrow x = 82$

convert to rational exponents
 reciprocal power

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(D) $4 + 2(3x)^{2/3} = 12$
 $2(3x)^{2/3} = 8$
 $(3x)^{2/3} = 4$
 $3x = (\sqrt[3]{4})^3$
 $3x = 2^3$
 $3x = 8 \quad ; \quad 3x = -8$
 $x = 8/3 \quad \quad x = -8/3$

IF power you use is even two possible solutions

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$$\textcircled{1} \frac{\sqrt[3]{(3x-8)^2}}{-7} = -7$$

$\cdot -7$

$$\sqrt[3]{(3x-8)^2} = 49$$

$$(3x-8)^{\frac{2}{3}} = 49^{\frac{3}{2}}$$

$$3x-8 = \sqrt{49}$$

$$3x-8 = 343$$

$$3x = 351$$

$$x = 117$$

$$\text{AND } 3x-8 = -343$$

$$3x = -335$$

$$x = \frac{-335}{3}$$

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Extraneous
Solutions are
Solutions that
do not work
when plugged back
in.

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