Bellwork Alg 2 Thursday, December 13, 2018

Solve each equation.

1. $2\sqrt{5x+3} - 8 = 14$

2. $(5x-6)^{\frac{1}{2}} = x$

3. $\sqrt[3]{x-7} + 2 = 6$

4. $4(2x-5)^{\frac{3}{4}} + 7 = 115$

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ANSWERS

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1. $2\sqrt{5x+3} - 8 = 14$

$+8 \quad +8$

$\frac{2\sqrt{5x+3}}{2} = \frac{22}{2}$

$\left(\sqrt{5x+3}\right)^2 = (11)^2$

$5x+3 = 121$

$-3 \quad -3$

$\frac{5x}{5} = \frac{118}{5}$

$x = \frac{118}{5}$ or $23.6$

2. $(5x-6)^{\frac{1}{2}} = x$

$\left[(5x-6)^{\frac{1}{2}}\right]^2 = (x)^2$

$5x-6 = x^2$

$-5x \quad -5x$

$-6 = x^2 - 5x$

$+6 \quad +6$

$0 = x^2 - 5x + 6$

$+6$, $-3$, $-2$, $-5$

$0 = (x-3)(x-2)$

$x = 2, 3$

3. $\sqrt[3]{x-7} + 2 = 6$

$-2 \quad -2$

$\left(\sqrt[3]{x-7}\right)^3 = (4)^3$

$x-7 = 64$

$+7 \quad +7$

$x = 71$

4. $4(2x-5)^{\frac{3}{4}} + 7 = 115$

$-7 \quad -7$

$\frac{4(2x-5)^{\frac{3}{4}}}{4} = \frac{108}{4}$

$\left[(2x-5)^{\frac{3}{4}}\right]^{\frac{4}{3}} = (27)^{4/3}$

$2x-5 = \left(\sqrt[3]{27}\right)^4 = 3^4 = 81$

$2x-5 = 81$

$+5 \quad +5$

$\frac{2x}{2} = \frac{86}{2}$

$x = 43$