

Bellwork Hon Alg 2 Thursday, March 30, 2017

Solve each equation.

1. $2\sqrt{3x+13} - 3 = 2x+7$

2. $(x+10)^{\frac{4}{3}} - 5 = 11$

3. $\sqrt{24-4x} - x = -3$

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ANSWERS

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1. $2\sqrt{3x+13} - 3 = 2x+7$

$$\frac{2\sqrt{3x+13}}{2} = \frac{2x+10}{2}$$

$$(\sqrt{3x+13})^2 = (x+5)^2$$

$$\begin{array}{r} 3x+13 = x^2+10x+25 \\ -3x-13 \quad -3x-13 \end{array}$$

$$0 = x^2+7x+12$$

$$0 = (x+3)(x+4)$$

$$x = -3, -4$$

2. $(x+10)^{\frac{4}{3}} - 5 = 11$

$$\left(\frac{(x+10)^{\frac{4}{3}}}{\frac{4}{3}}\right)^{\frac{3}{4}} = \left(\frac{16}{\frac{4}{3}}\right)^{\frac{3}{4}} \rightarrow \left(\frac{4\sqrt{16}}{\frac{4}{3}}\right)^3 = (\pm 2)^3 = \pm 8$$

$$\begin{array}{r} x+10 = \pm 8 \\ -10 \quad -10 \end{array}$$

$$x = -2, -18$$

3. $\sqrt{24-4x} - x = -3$

$$(\sqrt{24-4x})^2 = (x-3)^2$$

$$\begin{array}{r} 24-4x = x^2-6x+9 \\ -24+4x \quad -4x-24 \end{array}$$

$$0 = x^2-2x-15$$

$$0 = (x-5)(x+3)$$

$$x = 5, -3$$

$$x = 5 \text{ only}$$