

Alg2 4.3 Practice Solutions.notebook

<p>9) $(\sqrt{b-7}) = (\sqrt{9-b})^2$</p> $\begin{array}{r} b-7 = 9-b \\ 1b \qquad 1b \\ \hline 2b-7 = 9 \\ +7 \quad +7 \\ \hline 2b = 16 \\ \boxed{b=8} \end{array}$ <p>Check</p> $\begin{array}{l} \sqrt{8-7} = \sqrt{9-8} \\ \sqrt{1} = \sqrt{1} \checkmark \end{array}$	<p>10) $3 = \sqrt{x} + \sqrt{x+3}$</p> $\begin{array}{r} -\sqrt{x} \quad -\sqrt{x} \\ (3-\sqrt{x})^2 = (\sqrt{x+3})^2 \\ (3-\sqrt{x})(3-\sqrt{x}) = x+3 \\ 9-6\sqrt{x}+x = x+3 \\ -9 \qquad -x \quad -x-9 \\ \hline -6\sqrt{x} = -6 \\ \frac{-6\sqrt{x}}{-6} = \frac{-6}{-6} \\ (\sqrt{x})^2 = 1^2 \\ \boxed{x=1} \end{array}$ <p>Check</p> $\begin{array}{l} 3 = \sqrt{1} + \sqrt{1+3} \\ 3 = 1 + \sqrt{4} \\ 3 = 1 + 2 \\ 3 = 3 \checkmark \end{array}$	
<p>11) $1 + \sqrt{6x-6} = x$</p> $\begin{array}{r} -1 \qquad -1 \\ \hline (\sqrt{6x-6})^2 = (x-1)^2 \\ 6x-6 = (x-1)(x-1) \\ 6x-6 = x^2-2x+1 \\ -6x+6 \quad -6x+6 \\ \hline 0 = x^2-8x+7 \\ 0 = (x-7)(x-1) \\ \boxed{x=7 \text{ or } x=1} \end{array}$ <p>Check</p> $\begin{array}{l} 1 + \sqrt{6(7)-6} = 7 \\ 1 + \sqrt{42-6} = 7 \\ 1 + \sqrt{36} = 7 \\ 1 + 6 = 7 \\ 7 = 7 \checkmark \\ 1 + \sqrt{6(1)-6} = 1 \\ 1 + \sqrt{0} = 1 \\ 1 + 0 = 1 \\ 1 = 1 \checkmark \end{array}$	<p>12) $(\sqrt{m^2+2m+1}) = 5$</p> $\begin{array}{r} m^2+2m+1 = 25 \\ -1 \qquad -1 \\ \hline m^2+2m-24 = 0 \\ (m-4)(m+6) = 0 \\ \boxed{m=4 \text{ or } m=-6} \end{array}$ <p>Check</p> $\begin{array}{l} \sqrt{4^2+2(4)+1} = 5 \\ \sqrt{16+8+1} = 5 \\ \sqrt{25} = 5 \\ 5 = 5 \checkmark \\ \sqrt{(-6)^2+2(-6)+1} = 5 \\ \sqrt{36-12+1} = 5 \\ \sqrt{25} = 5 \\ 5 = 5 \checkmark \end{array}$	
<p>Directions: Use the Remainder Theorem to find the remainder for each of the following divisions.</p>		
<p>13) $\frac{x^3-6x^2-7x+1}{x+4}$</p> $\begin{array}{l} x = -4 \\ (-4)^3 - 6(-4)^2 - 7(-4) + 1 \\ -64 - 96 + 28 + 1 \\ \boxed{-131} \end{array}$	<p>14) $\frac{x^2+3x+1}{x-2}$</p> $\begin{array}{l} x = 2 \\ (2)^2 + 3(2) + 1 \\ 4 + 6 + 1 \\ \boxed{11} \end{array}$	<p>Use the Factor Theorem to determine if $(x+1)$ is a factor of the following:</p> <p>15) $-2x^5 - 4x^4 + x - 10$</p> $\begin{array}{l} x = -1 \\ -2(-1)^5 - 4(-1)^4 + (-1) - 10 \\ -2(-1) + 4 - 1 - 10 \\ 2 + 4 - 1 - 10 \\ 6 - 11 \\ -5 \text{ NO - NOT A FACTOR} \end{array}$