Honors Advanced Algebra
Chapter 6 Assignment List
Radical Functions and Rational Exponents

Check when handed in.

_____ 6-5 Solving Square Root and Other Radical Equations
_____ 6-6 Function Operations
_____ 6-7 Inverse Relations and Functions
_____ 6-8 Graphing Circles and Chapter 6 Review

Test Goal: _______________________
What are you going to do to attain your goal? Be specific!

______________________________________________

Did you reach your goal? ______________
If not, what are you going to do differently to attain your goal next time? Be specific! ________________________________
Target: Solving Square Root & Other Radical Equations

1. \((2x-1)^2 = 3^2\)
   \[2x-1 = 9\]
   \[2x = 10\]
   \[x = 5\]

2. \(\sqrt{6-3x} - 2 = 0\)
   \[\sqrt{6-3x} = 2\]
   \[6-3x = 4\]
   \[-3x = -2\]
   \[x = \frac{2}{3}\]

3. \(3(x-2)^{4/3} = 24\)
   \[3(x-2) = 8\]
   \[x-2 = \frac{8}{3}\]
   \[x = \frac{16}{3}\]

4. \((x+2)^{2/3} = 9^{3/2}\)
   Since 3 of \(\sqrt[3]{2}\) is even, there will be 2 answers. So we have:
   \[x+2 = 27\]
   \[x+2 = -27\]
   \[x = 25\]
   \[x = -29\]

5. \(2(x+3)^{2/3} + 1 = 9\)
   \[2(x+3)^{2/3} = 8\]
   \[(x+3)^{2/3} = 4\]
   \[x+3 = 8\]
   \[x+3 = -8\]
   \[x = 5\]
   \[x = -11\]
Solve. Check for extraneous solutions.

\[ \begin{align*}
0. (3x+1)^2 &= (x-1)^2 & 0. (-3x-5)^3 &= (x+3)^2 \\
3x^2 + 7 &= x^2 - 2x + 1 & \text{Distinguish} & -3x - 5 = x^2 + 6x + 9 \\
\text{or} & & +3x + 5 & +3x + 5 \\
& & 0 = x^2 - 5x - 6 & 0 = x^2 + 9x + 14 \\
& & 0 = (x-6)(x+1) & 0 = (x+7)(x+2) \\
x-6 &= 0 & x+1 &= 0 \\
x &= 6 & x &= -1 \\
\text{Check:} & & \checkmark & \checkmark \\
\end{align*} \]

8. Check answer using orig. prob.

\[ \begin{align*}
\sqrt{361} + 7 &= 6 - 1? & \sqrt{361} + 7 &= -1 - 1 \\
\sqrt{361} &= 5 \checkmark & \sqrt{4} &= -2 \ 	ext{No} \\
25 &= 5? & 5 &= 5 \checkmark \\
\end{align*} \]

\[ \begin{align*}
0. (7x+6)^3 - (9+4x)^3 &= 0 \\
& = (7x+6)^2 - (9+4x)^2 \checkmark \\
x+6 &= 9+4x \\
3x &= 3 \\
\text{Check:} & & \checkmark \\
\end{align*} \]

\[ \begin{align*}
(7(1)+6)^6 - (9+4(1))^2 &= 0? \\
(13)^6 - (13)^2 &= 0? \\
\text{Yes!} \end{align*} \]
9. \[ \sqrt{5-x} - \sqrt{x} = 1 \]
\[ (\sqrt{5-x})^2 = (1+\sqrt{x})^2 \]
\[ 5-x = 1 + x + 2\sqrt{x} \]
\[ -5 = 2\sqrt{x} \]
\[ -x = 2 \sqrt{x} \]
\[ \frac{2}{-x} = \sqrt{x} \]
\[ (2-x)^2 = (\sqrt{x})^2 \]
\[ 4 = 4x + x^2 = x \]
\[ 4x + x^2 - x = 0 \]
\[ x^2 - 3x + 4 = 0 \]
\[ (x-4)(x-1) = 0 \]
\[ x = 4 \]
\[ x = 1 \]
\[ \text{Check: } 2\sqrt{4} + 5 \neq 5 \]

10. \[ \sqrt{2x+6} - \sqrt{x-1} = 2 \]
\[ \left(\sqrt{2x+6}\right)^2 = \left(2 + \sqrt{x-1}\right)^2 \]
\[ 2x + 6 = 4 + x + 4\sqrt{x-1} \]
\[ x + 2 = 4\sqrt{x-1} \]
\[ x + 2 = (4\sqrt{x-1})^2 \]
\[ x^2 + 4x + 4 = 16(x-1) \]
\[ x^2 + 4x + 4 - 16x + 16 = 0 \]
\[ x^2 - 12x + 20 = 0 \]
\[ (x-5)(x-4) = 0 \]
\[ x = 5 \]
\[ x = 4 \]

Assignment: 0, 395, 10-24 even, 27-35 odd, 36-38, 48, 60