SYW means Show Your Work as if you did not have your calculators.

SYW 1. (7.5 #27) Solve for the exact (non-decimal) solution(s):
\[ \frac{1}{4}x^2 = 2x - \frac{9}{2} \].

SYW 2. (7.5 #47) Solve for the exact (non-decimal) solution(s):
\[ (x - 1)^2 + (x + 2)^2 = 6 \].

3. (7.5 #73) Solve graphically on your calculator and round the solution(s) to two decimal places:
\[ \frac{1}{4}x^2 + 1 = -x^2 - x + 5 \].

4. (7.5 #71) A person throws a stone [upward] into the air. The height of the stone \( h(t) \) (in feet) above the ground \( t \) seconds after it was thrown is given by \( h(t) = -16t^2 + 52t + 4 \). When does the stone reach the ground(round to two decimal places)?
SYW 5. (7.6 #21) Find the equation of the parabola that contains the points (2, 2), (3, 11) and (4, 24).

5. ____________________

SYW 6. (8.1 #25) Find the domain of

\[ f(x) = \frac{2x - 14}{4x^3 - 8x^2 - 9x + 18}. \]

6. ____________________

7. (7.7 #11) Let \( f(t) \) and \( g(t) \) be the annual sales of Miller Light® beer and Tecate® beer (in millions of cases), respectively, at \( t \) years since 2000 (see table). Find the appropriate (linear, quadratic, or exponential) regression equations for \( f \) and \( g \). Round the constants to two decimal places.

\[ f(t) = \] \[ g(t) = \]

<table>
<thead>
<tr>
<th>Year</th>
<th>Miller Lite</th>
<th>Tecate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3.9</td>
<td>11.0</td>
</tr>
<tr>
<td>2001</td>
<td>4.3</td>
<td>12.0</td>
</tr>
<tr>
<td>2002</td>
<td>4.9</td>
<td>13.1</td>
</tr>
<tr>
<td>2003</td>
<td>6.2</td>
<td>13.5</td>
</tr>
<tr>
<td>2004</td>
<td>7.5</td>
<td>14.6</td>
</tr>
</tbody>
</table>

8. (8.1 #51) Simplify the right side of the equation:

\[ f(x) = \frac{3x^2 + 7x - 6}{27x^3 - 8}. \]

8. ____________________
9. (8.2 #31) Divide and simplify:
\[
\frac{9x^2 - 16}{x + 2} + (3x^2 + 5x - 12)
\]

SYW 10. (8.3 #5) Subtract and simplify:
\[
\frac{6m^2}{m^2 - 4m + 3} - \frac{4m^2 + 6m}{m^2 - 4m + 3}
\]

SYW 11. (8.3 #43) Subtract and simplify:
\[
\frac{x + 4}{x^2 - 7x + 10} - \frac{5}{x^2 - 25}
\]

SYW 12. (8.5 #15) Solve \[
\frac{-48}{x^2 - 2x - 15} - \frac{6}{x + 3} = \frac{7}{x - 5}
\]

SYW 13. (9.1 #41) Simplify \( \sqrt[9]{x^{17}} \)
14. (9.1 #45) Simplify $\sqrt[5]{64x^{39}y^7}$

15. (9.1 #61) Simplify and reduce the index $\sqrt[6]{x^{14}}$

16. (9.2 #7) Simplify $2\sqrt{x} + 5 - 7\sqrt{x} - 9 + 5\sqrt{x}$

17. (9.2 #41) Simplify $(5\sqrt{a} + \sqrt{b})(\sqrt{a} - 2\sqrt{b})$

18. (9.3 #27) Simplify $\frac{6}{\sqrt[3]{2x^2}}$

19. (9.3 #51) Simplify $\frac{\sqrt{x} - 5}{\sqrt{x} + 5}$

20. (9.5 #25) Solve $\sqrt{3w + 3} = w - 5$