7.3,7.5,7.6 Review

1) Solve:

$(4^{3x+7})(4^{2x-9}) = 4^{13}$

$4^{5x-2} = 4^{13}$

$x = 3$

2) Solve:

$625^{x-1} = 5$

$(5^4)^{x-1} = 5^1$

$4x = 5$

$5/4$

3) Simplify:

$1296^{\frac{3}{4}}$

$\left(\sqrt[4]{1296}\right)^3$

216

4) Write in radical form:

$32x^{\frac{5}{6}}$

$32\sqrt[6]{x^5}$

5) A weight lifter can squat 475 pounds. She plans to increase the weight $W(x)$ in pounds that she is lifting according to the function $W(x) = 475(1.05)^x$, where x represents the number of training cycles she completes. How much will she squat after 4 training sessions?

$475(1.05)^4$

577 lbs

6) Determine the amount of an investment if \$96,000 is invested at an interest rate of 5.2% compounded monthly for 3 years.

$96,000\left(1 + \frac{.052}{12}\right)^{12 \cdot 3}$ \$ $112,169.51$

7) Suppose a car that sells for \$40,000 depreciates 10% per year. How many years would it take for the car to have a value less than \$25,000?

$t = 1 \rightarrow 36,000$
$t = 2 \rightarrow 32,400$
$t = 3 \rightarrow 29,160$
$t = 4 \rightarrow 26,244$
$t = 5 \rightarrow 23,019.60$

$40,000(.90)^t < 25,000$

5 years