Dream Book Work
Please get your "Dream Book" from the front table and a gold NeSA reference sheet.
Start page 18 by filling in the blanks at the top of the page.

Pages 18 & 19
Use the NeSA reference sheet to find the Pythagorean Theorem.

Put the polynomial in standard form, then list the following:

\[ x^3 + 7x^4 - 5x^5 + 38x - 16 \]

1) standard form: __________________
2) degree: _________
3) classify by degree___________
4) classify by the number of terms_______
5) number of solutions: ________
6) maximum # of turns: ______
7) end behaviors: ____________

Quiz Review
\[ y = 2x - x^3 \]
Make a table, state the end behavior, and graph the function.

Quiz Review
What is the leading coefficient of the polynomial function?_____
What is the minimum degree of the function?_____

5.4 Synthetic Division
Use Synthetic Division to divide
\[ x^3 + 7x^2 - 38x - 240 \] by \( x + 5 \)

\[
\begin{array}{c|cccc}
-5 & 1 & 7 & -38 & -240 \\
\hline
& & & 1 & -38 \\
& & & & 1 \\
\end{array}
\]

step 1: reverse the sign of +5
step 2: write the coefficients of the polynomial
step 3: bring down the first coefficient
step 4: multiply by the divisor and add to the next coefficient
step 5: Write the quotient and the remainder (if any)

5.4 Synthetic Division
Use Synthetic Division to divide
\[ x^3 - 14x^2 + 51x - 54 \] by \( x + 2 \)

\[
\begin{array}{c|cccc}
-2 & 1 & -14 & 51 & -54 \\
\hline
& & & 1 & -14 \\
& & & & 1 \\
\end{array}
\]

step 1: reverse the sign of +2
step 2: write the coefficients of the polynomial
step 3: bring down the first coefficient
step 4: multiply by the divisor and add to the next coefficient
step 5: Write the quotient and the remainder (if any)
5.4 Synthetic Division

Use Synthetic Division to divide
$4x^3 - 3x^2 + 2x - 3$ by $x - 1$

If the polynomial $x^3 + 6x^2 + 11x + 6$ expresses the volume, in cubic inches, of the box, and the width of the box is $(x + 1)$ in., what are the dimensions of the box?

Remainder Theorem

If you divide a polynomial $P(x)$ by $x - a$, then the remainder is $P(a)$. (degree $(n) \geq 1$)

If you divide $P(x) = x^5 - 2x^3 - x^2 + 2$, by $x - 3$, then the remainder is the same as $P(3)$

Homework:

Page 308 21, 23, 27, 29
Page 301 20, 22, 24