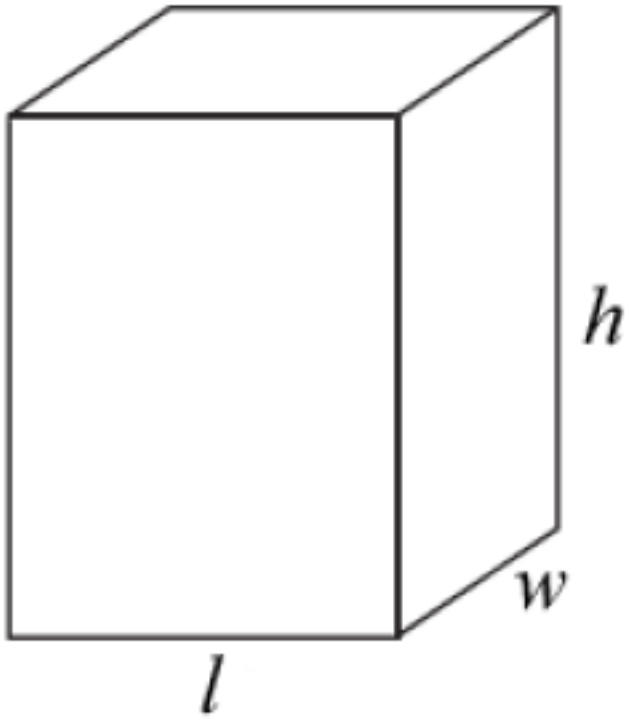
Algebra 2 Chapter 8-3 Part 2 Dividing Polynomials

Alg. 2 Standard 3.0 Students are adept at operations on polynomials, ***including long division.***

Volume of a Right Rectangular Prism

$$V = l \cdot w \cdot h$$



1) If the volume of a right rectangular prism is $x^3 - 2x^2 - 5x + 6$ and the height is $(x-1)$, find the length and width.

$$
\begin{array}{r|l}
x-1 & x^3-2x^2-5x+6 \\
 & \quad x^2-x-6 \\
 & +(-x^3+x^2) \\
 & \quad -x^2-5x \\
 & +(+x^2+\ \ x) \\
 & \quad\quad -6x+6 \\
 & +(+6x+\ \ 6) \\
 & \quad\quad\quad 0
\end{array}
$$

$x^3-2x^2-5x+6 = (x-1)(x^2-x-6)$

Next step, factor (x^2-x-6)

$x^2-x-6 = (x+2)(x-3)$

length & width are $(x+2)(x-3)$
we don't know which is which.

Ex 2) Multiply: (x-1)(x+2)(x-3)

$(x-1)[(x+2)(x-3)]$

$(x-1)[x^2-3x+2x-6]$

$(x-1)(x^2-x-6)$

$x^3-x^2-6x-x^2+x+6$

x^3-2x^2-5x+6