

Name KEY

Date _____

Hour _____

6.3 Notes – Synthetic Division *Algebra 2 Trig G*



SYNTHETIC DIVISION:

A procedure to divide a polynomial by a binomial using coefficients of the dividend and the value of r in the divisor $x - r$

Simplify:

$$1.) (x^2 - 2x - 15) \div (x - 5)$$

$x - r$
 $r = 5$

$$\begin{array}{r|rrr} 5 & 1 & -2 & -15 \\ & \downarrow & 5 & 15 \\ \hline & 1 & 3 & 0 \end{array}$$

$$\boxed{x + 3}$$

$$2.) (x^3 - 4x^2 + 6x - 4) \div (x - 2)$$

$x - r$
 $r = 2$

$$\begin{array}{r|rrrr} 2 & 1 & -4 & 6 & -4 \\ & \downarrow & 2 & -4 & 4 \\ \hline & 1 & -2 & 2 & 0 \end{array}$$

$$\boxed{x^2 - 2x + 2}$$

Try one on your own!

$$3.) (x^2 + 5x + 6) \div (x + 3)$$

$$r = -3$$

$$\begin{array}{r|rrr} -3 & 1 & 5 & 6 \\ & \downarrow & -3 & -6 \\ \hline & 1 & 2 & 0 \end{array}$$

$$\boxed{x + 2}$$