

Name: _____

Date: _____

Learning Goal 3.2

Factoring, including the factor theorem and the remainder theorem.

Assignment

1. Divide each of the following and provide a division statement. Identify any restrictions on the variable.

a. $m^2 - 7m - 11$ by $m - 8$.

$$= (m + 1)(m - 8) - 3$$

$$m \neq 8$$

b. $n^2 - n - 29$ by $n - 6$.

$$= (n + 5)(n - 6) + 1$$

$$n \neq 6$$

c. $n^2 + 10n + 18$ by $n + 5$.

$$= (n + 5)^2 - 7$$

$$n \neq -5$$

d. $k^2 - 7k + 10$ by $k - 1$.

$$= (k - 6)(k - 1) + 4$$

$$k \neq 1$$

e. $2x^2 - 17x - 38$ by $2x + 3$.

$$= (x - 10)(2x + 3) - 8$$

$$x \neq -\frac{3}{2}$$

f. $33 - 42x^2$ by $7x + 7$.

$$= (6 - 6x)(7x + 7) + 9$$

$$x \neq -1$$

g. $x^3 + 7x^2 + 14x + 3$ by $x + 2$.

$$= (x^2 + 5x + 4)(x + 2) - 5$$

$$x \neq -2$$

h. $z^3 - 10z^2 + 20z + 26$ by $z - 5$.

$$= (z^2 - 5z - 5)(z - 5) + 1$$

$$z \neq 5$$

i. $k^3 - 30k - 18 - 4k^2$ by $3 + k$.

$$= (k^2 - 7k - 9)(3 + k) + 9$$

$$k \neq -3$$

j. $-5x^2 + x^3 + 8x + 4$ by $-1 + x$.

$$= (x^2 - 4x + 4)(x - 1) + 8$$

$$x \neq 1$$

k. $50p^3 + 10p^2 - 35p - 7$ by $5p - 4$.

$$= (10p^2 + 10p + 1)(5p - 4) - 3$$

$$p \neq \frac{4}{5}$$