Name: _____ Date: _____

Learning Goal 5.3	I can multiply and divide polynomials.

1. Expand the following products. Express your answer in simplest terms

a. $(x+3)(x+5) = x^2+8x+15$
b. $(a+3)(a-4) = a^2-a-12$
c. $(b-6)(b+2) = b^2-4b-12$
d. $(c-9)(c-3) = c^2-12c+27$
e. $(d+12)(d+3) = d^2+15d+36$
f. $(1-f)(f+5) = -f^2+4f+5$
g. $(2-g)(3-g) = g^2-5g+6$
h. $(h-1)(4-h) = -h^2+5h-4$
i. $(j+3)^2 = j^2+6j+9$
j. $(k-2)^2 = k^2-4k+4$

2. Find the following quotients. Express you answer in simplest terms.

a. $\frac{x^2+4x+4}{x+2} = x+2$
b. $\frac{m^2+11m+24}{m+8} = m+3$
c. $\frac{a^2+15a+36}{a+3} = a+12$
d. $\frac{k^2+9k+18}{k+6} = k+3$
e. $\frac{t^2+13t+12}{t+1} = t+12$
f. $\frac{t^2+10t+16}{t+2} = t+8$
g. $\frac{t^2+8t+12}{t+2} = t+6$
h. $\frac{t^2+8t+16}{t+8} = \text{DNE}$
i. $\frac{n^2+11n+24}{n+3} = n+8$
j. $\frac{j^2+15j+26}{j+13} = j+2$

3. Factor the following polynomials. Express you answer in simplest terms.

a. $x^2+4x+4 = (x+2)^2$
b. $m^2+14m+24 = (m+2)(m+12)$
c. $a^2+12a+36 = (a+6)^2$
d. $k^2+19k+18 = (k+1)(k+18)$
e. $t^2+8t+12 = (t+2)(t+6)$
f. $t^2+8t+16 = (t+4)^2$
g. $t^2+7t+12 = (t+3)(t+4)$
h. $t^2+10t+16 = (t+2)(t+8)$
i. $n^2+14n+24 = (n+2)(n+12)$
j. $j^2+15j+26 = (j+2)(j+13)$