

Instructions: Complete the following problems. You may work alone or in a group. Do not just copy answers from a group member, but be sure that you understand the problem. Similar questions will appear on exams. You may be asked to explain or present the answers to the class. This assignment is due at the end of the class period.

1. Perform the multiplication. Either apply the formulas $(a + b)^2 = a^2 + 2ab + b^2$, $(a - b)^2 = a^2 - 2ab + b^2$, or write the expression as the product of 2 (or more) binomials and FOIL the result.

a. $(x + 6)^2$ $x^2 + 12x + 36$

b. $(x - 2)^2$ $x^2 - 4x + 4$

c. $(5k + 2y)^2$ $25k^2 + 20ky + 4y^2$

d. $(x + \frac{1}{2})^2$ $x^2 + x + \frac{1}{4}$

e. $(2x + 1)^3$ $(2x+1)^2(2x+1) = (4x^2 + 4x + 1)(2x+1) = 8x^3 + 12x^2 + 6x + 1$

f. $(m - 2)^4$ $(m-2)^2(m-2)^2 = (m^2 - 4m + 4)(m^2 - 4m + 4) = m^4 - 8m^3 + 24m^2 - 32m + 16$

g. $(x + 2y)^2$ $x^2 + 4xy + 4y^2$

h. $(3 - 4q)^2$ $9 - 24q + 16q^2$

i. $(b - 1)^3$ $b^3 - 3b^2 + 3b - 1$

j. $(\frac{1}{3}x^2 - \frac{1}{4})^2$ $\frac{1}{9}x^4 - \frac{1}{6}x^2 + \frac{1}{16}$

k. $(y^3 + 2)^2$ $y^6 + 4y^3 + 4$

l. $(7r + 9s)^2$ $49r^2 + 126rs + 81s^2$

m. $(4 - x^5)^3$ $64 - 48x^5 + 12x^{10} - x^{15}$