Section 4.5   Focus Exercises

1.   Identify the conjugate of the given binomial.

   a)   The conjugate of $(x + 5)$ is _____   b)   The conjugate of $(y - 6)$ is _____

   c)   The conjugate of $(3y + 9)$ is _____   d)   The conjugate of $(4w - 7)$ is _____

   e)   The conjugate of $(2x^3 - 8)$ is _____   f)   The conjugate of $(6y^2 - 1)$ is _____

2.   Multiply these conjugates. Each answer should be the difference of squares. You should use the shortcut and do these in just one step.

   a) $(x + 3)(x - 3)$ b) $(y - 8)(y + 8)$ c) $(x - 9)(x + 9)$

   d) $(7 - x)(7 + x)$ e) $(9 + y)(9 - y)$ f) $(1 - 3y)(1 + 3y)$

   g) $(5x + 1)(5x - 1)$ h) $(3y - 8)(3y + 8)$ i) $(4x - 9)(4x + 9)$

   j) $(x^2 + 4)(x^2 - 4)$ k) $(3x^2 - 6)(3x^2 + 6)$ l) $(x - 4y)(x + 4y)$

   m) $(3x - y)(3x + y)$ n) $(x^3 - y)(x^3 + y)$ o) $(x^2 - 3y)(x^2 + 3y)$

3.   The result of multiplying a pair of conjugates is shown. Fill in each set of parentheses with an appropriate binomial. (Check your work mentally by multiplying what you wrote in each set.)

   a)   (   )(   ) $= x^2 - 81$ b)   (   )(   ) $= p^2 - 49$

   c)   (   )(   ) $= 4y^2 - 25$ d)   (   )(   ) $= 9m^2 - 100$

4. Use the rule of Squaring the Binomial to find the following; try to do these in one step.

a) $(x + 7)^2$

b) $(w - 9)^2$

c) $(y - 1)^2$

d) $(m - 4)^2$

e) $(c - 10)^2$

f) $(p + 12)^2$

g) $(2x + 3)^2$

h) $(3x + 5)^2$

i) $(4y - 1)^2$

j) $(2y - 5)^2$

k) $(w^2 - 4)^2$

l) $(y^2 - 9)^2$

5. The result of multiplying a pair of conjugates is shown. Fill in each set of parentheses with the appropriate binomial.

a) $(\quad\quad)^2 = x^2 + 18x + 81$

b) $(\quad\quad)^2 = x^2 - 2x + 1$

c) $(\quad\quad)^2 = x^2 + 20x + 100$

d) $(\quad\quad)^2 = x^2 - 6x + 9$

e) $(\quad\quad)^2 = x^2 + 14x + 49$

f) $(\quad\quad)^2 = x^2 - 12x + 36$

g) $(\quad\quad)^2 = x^2 + 4x + 4$

h) $(\quad\quad)^2 = x^2 - 22x + 121$