

1. Find each product.

a) $(-8x^2)(-x^4)(-3x)$

b) $\left(-\frac{2}{3}rt^2\right)(-9r^3t)$

c) $(-3cd^2)(5c^4 - c^3d + 2cd^2)$

d) $(5x + 4y)(4x - 2y)$

e) $-2x(x + 3)(3x - 4)$

f) $(3 - 2x)(3 + 2x)$

g) $(2x - 1)^2$

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

i) $(-x - 1)^2$

j) $(3x^2 + 2y^3)^2$

k) $(x + 4 - y)(x + 4 + y)$

l) $(3 - x + y)^2$

m) $(2x - y)(2x + y)(x - y)$

n) $(2x + 3y)(2x - 3y)(4x^2 + 9y^2)$

o) $(a^n - b^m)(a^n + b^m)$

p) $x^{3b}(x^{-3b} + 3x^{-b} + 5)$

q) $(0.6a - 1.2b^2)(0.6a + 1.2b^2)$

r) $(x + 1)^3$

2. Find the product $202 \cdot 198$ using the difference of squares formula.

3. True or False.

a) $(x + y)^2 = x^2 + y^2$

b) $(x - 1)^3 = x^3 - 1^3$

4. Given $f(x) = 2x + 5$, and $g(x) = x^2 - 3$, find the following:

a) $(fg)(x)$

b) $(fg)(-2)$

c) $3 \cdot (fg)(-1)$

5. The available habitat for a wild animal excludes an area of uniform width on the edge of an 8 km by 10 km rectangular forest preserve, as shown in the figure.

a) Find a trinomial function $A(x)$ that gives the area of the available habitat in km^2 .

b) The value of x depends on the animal. What is the available habitat for a bobcat for which $x = 0.4$ km?

