CHAPTER 3 Polynomials
3.3 Discover the Exponent Laws
Finding the power of a power

Example:
Write each as a single power. Then, evaluate.

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

b) $(xy^3)^4$ when $x = 2$ and $y = -1$

Solution:

a) $\left(-4^2\right)^3 = \left(-4\right)^{2\times 3}$
$= \left(-4\right)^6$
$= 4096$

b) $\left(xy^3\right)^4 = x^{1\times 4}y^{3\times 4}$
$= x^4y^{12}$
$= 2^4 \times \left(-1\right)^{12}$
$= 16 \times 1$
$= 16$

Practice:
Write each as a single power. Then, evaluate.

1. $(5^2)^2$

2. $(a^2b^3)^3$, when $a = -3$ and $b = 1$

Answers:

1. 625 **2.** 729