Check Up

1. Determine the GCF of $60ab^2$ and $-15b^3$ using prime factorization.

Compare your answers.

1. Determine the GCF of $60ab^2$ and $-15b^3$ using prime factorization.

$60 = 2 \cdot 2 \cdot 3 \cdot 5$ $\quad ab^2 = a \cdot b \cdot b$

$-15 = -1 \cdot 3 \cdot 5$ $\quad b^3 = b \cdot b \cdot b$

$3 \cdot 5 \cdot b \cdot b = 15b^2$

The GCF of $60ab^2$ and $-15b^3$ is $15b^2$.

Because you are asked for the GCF of $60ab^2$ and $-15b^3$, $15b^2$, rather than $-15b^2$ is the GCF.

However, it is common convention that if ALL of the terms to be factored are negative, the 'GCF' may be negative in order to make all resulting terms positive. This convention makes the factored result appear 'cleaner'.

Strategy 2: List Factors

To use this strategy, list all the possible factors for each expression and determine the common factors.

Example 2

Determine the GCF of $20p^2q^2$ and $45p^3q^4$.

List the factors of each monomial and identify the largest factors that appear in both lists. The product of these largest factors will be the GCF.

$20p^2q^2$: $1, 2, 4, 5, 10, 20, p, p^2q, q^2$

$45p^3q^4$: $1, 3, 5, 9, 15, 45, p, p^2, p^3, q, q^2, q^3, q^4$

The GCF of $20p^2q^2$ and $45p^3q^4$ is $5p^2q^2$.