**Unit 1: Expressions and Exponents**

**Learning Target 2: Powers of Monomials**



**A shipping box is in the shape of a cube. Each side measures 3*c*6*d*2 inches. Express the volume of the cube as a monomial.**

The formula for the volume of a cube is *V* = *s*3, where *x* is the length of each side.

(3*c*6*d*2)3 = 33(*c*6)3 (*d*2)3 Power of a product.

= 33 ∙ *c*6 · 3 ∙ *d*2 · 3 Power of a power

= 27*c*18*d*6 Simplify.

The volume of the box is27*c*18*d*6  cubic units.



**Simplify (–2v7)3(–4v2)4. Show your work.**

(−2*v*7)3(−4*v*2)4 = (−2)3(*v*7)3(−4)4(*v*2)4 Power of a product.

= −8 ∙ *v*(7 ∙ 3) ∙ 256 ∙ *v*(2 ∙ 4) Power of a power.

= −2,048*v*(7 ∙ 3) + (2 ∙ 4) Commutative Property

= −2,048*v*21+ 8 Multiply.

= −2,048*v*29 Add.