



## 7-3 Multiply powers with the same base

Today's Learning Target:

**\* I CAN multiply powers with the same base**

### Multiplying Powers

The Product of Powers:  $x^m \cdot x^n = x^{m+n}$

(again,  $a \neq 0$ )

Like bases.... add exponents

$$2^2 \cdot 2^2$$

$$2^2 \cdot 2^5$$

$$2^1 \cdot 2^6$$

$$y^3 \cdot y^6$$

$$x^4 \cdot x^4$$

Rewrite using each base only once.

$$(-3)^4 \cdot (-3)^{-6} \cdot (-3)^8$$

$$x^{-5} \cdot x^3 \cdot x^2$$

## Simplify

$$4z^5 \cdot 9z^{-12} =$$

$$2a \cdot 9b^4 \cdot 2a^2 =$$

$$-4c^3 \cdot 7d^2 \cdot 2c^{-2} =$$

# Simplify

$$(x^5y^2)(x^{-7}y) =$$

$$(3x^3)(-2y^2)(4x^{-1}) =$$

$$-h^4 \cdot 3g^3 \cdot 6h^{-8} \cdot 5g^2 =$$

Fill in the missing exponent.

$$8^{\square} \cdot 8^4 = 8^{-2} \quad \square$$

$$y^{-7} \cdot y^{\square} = y^5 \quad \square$$

Simplify

$$2a^4(3a + 1) =$$

$$-3x^3(2x^3 - 4x) =$$

You Try! Simplify.

1.  $5x^4 \cdot x^{-9} \cdot 3x =$

2.  $(4c^4)(ac^3)(-3a^5c) =$

3.  $3m^2(-2m + m^3) =$