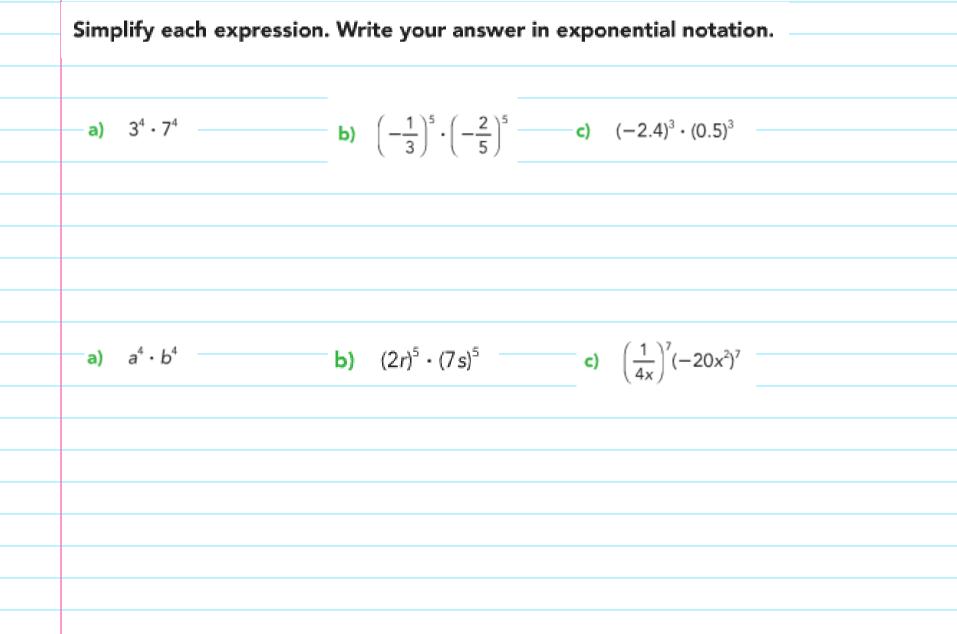
Objective

\*Understand the power of a product property

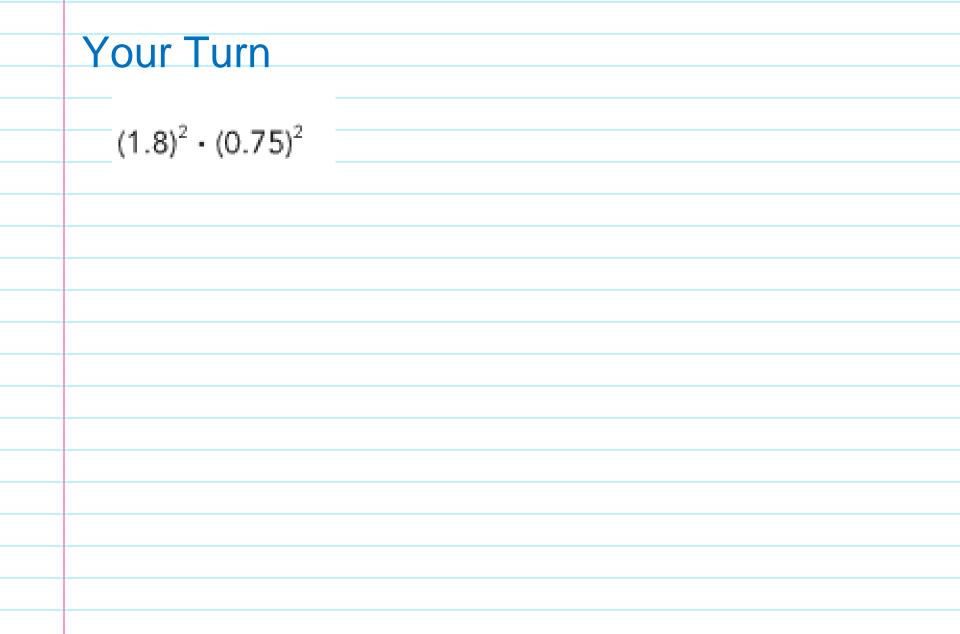
\*Understand the power of quotient property

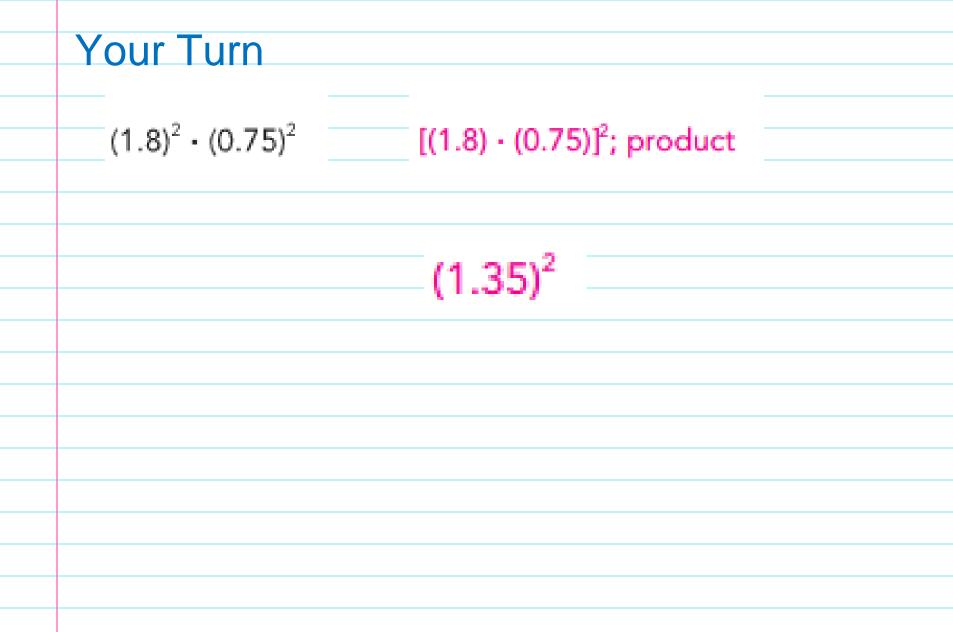
\*Use properties of exponents to simplify expressions

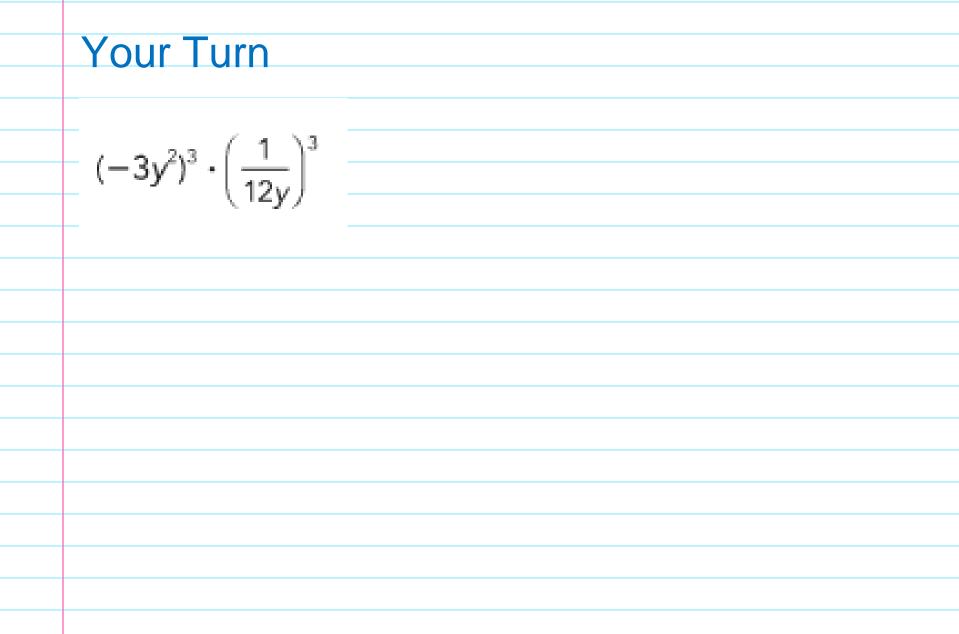
- Common Core State Standards 8.EE.1
- Mathematical Practices 4. Model mathematics. 5. Use tools strategically. 6. Attend to precision.

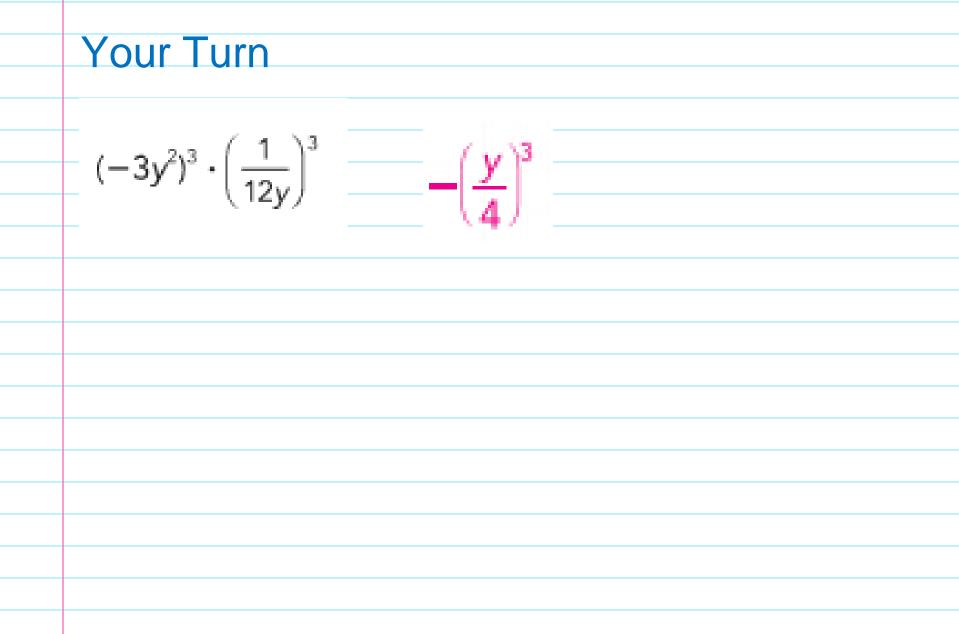


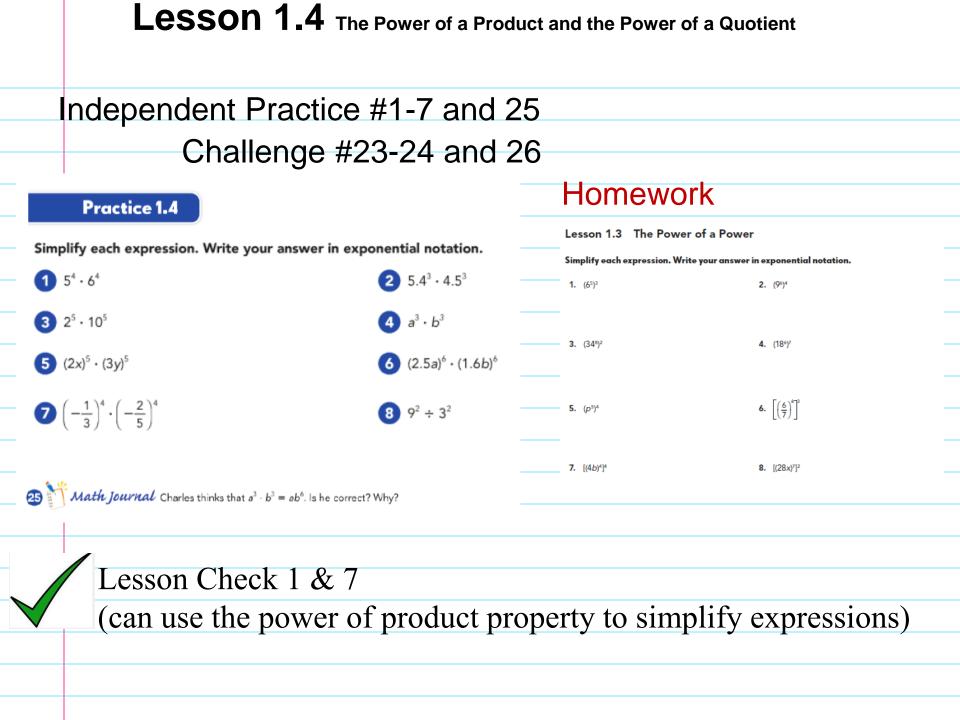
Simplify each expression. Write your answer in exponential notation. **b)**  $\left(-\frac{1}{3}\right)^5 \cdot \left(-\frac{2}{5}\right)^5$ c)  $(-2.4)^3 \cdot (0.5)^3$ a)  $3^4 \cdot 7^4$ Solution Solution Solution  $(-2.4)^3 \cdot (0.5)^3 = [(-2.4) \cdot (0.5)]^3$  $3^4 \cdot 7^4 = (3 \cdot 7)^4 \qquad \left(-\frac{1}{3}\right)^5 \cdot \left(-\frac{2}{5}\right)^5 = \left[\left(-\frac{1}{3}\right) \cdot \left(-\frac{2}{5}\right)\right]^5$  $= (-1.2)^{3}$  $= -1.2^{3}$  $=\left(\frac{2}{15}\right)^5$  $= 21^4$ c)  $\left(\frac{1}{4x}\right)^{7}(-20x^{2})^{7}$ **b)**  $(2r)^5 \cdot (7s)^5$ a)  $a^4 \cdot b^4$ Solution Solution Solution  $\left(\frac{1}{4x}\right)^{7}(-20x^{2})^{7} = \left[\left(\frac{1}{4x}\right)(-20x^{2})\right]^{7}$  $a^4 \cdot b^4 = (a \cdot b)^4$  $(2r)^5 \cdot (7s)^5 = (2r \cdot 7s)^5$  $= \left[ \left(\frac{1}{4}\right) \cdot (-20) \cdot \left(\frac{1}{x}\right) \cdot (x^2) \right]^{7}$  $= (ab)^{4}$  $= (14rs)^{5}$  $=\left[\left(\frac{1}{4}\right)\cdot(-20)\cdot\left(\frac{x^2}{x}\right)\right]^{7}$  $= [(-5) \cdot (x^{2})]^{7}$  $= (-5x)^{7}$  $= -(5x)^{7}$ 











#### **Lesson 1.3 Powers of Powers**

#### **Understanding of Learning**

Lesson 1.4 The Power of a Product and the Power of a Quotient



#### Ticket Out the Door

Using algebraic notation, state the power of a product property and the power of a quotient property.