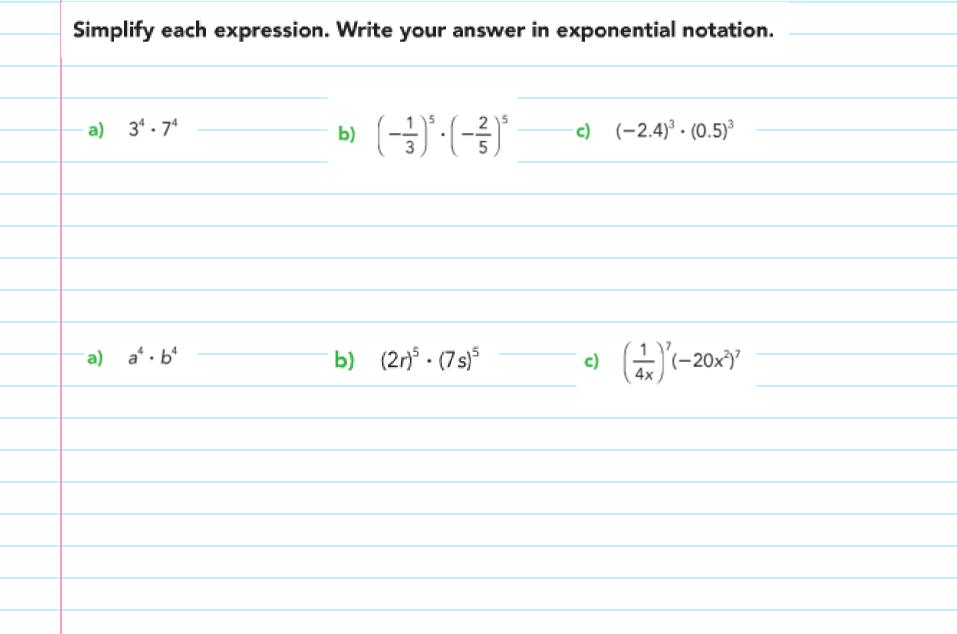
Objective

*Understand the power of a product property

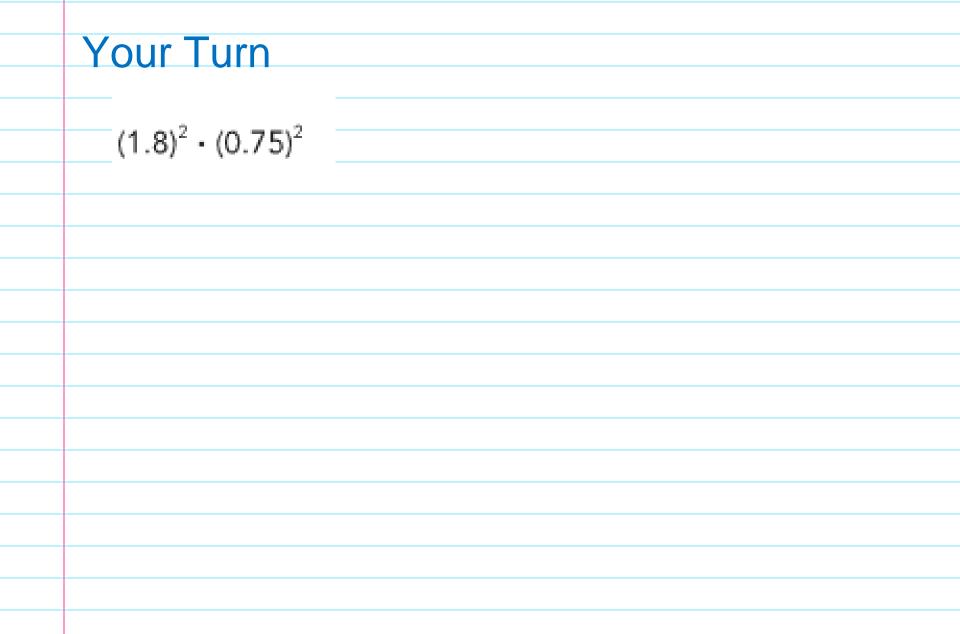
*Understand the power of quotient property

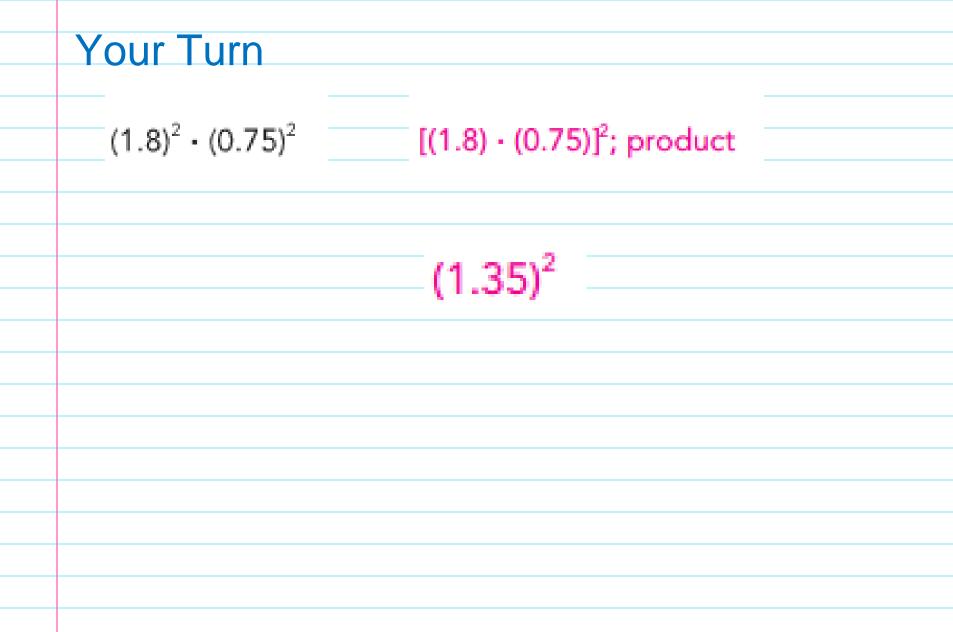
*Use properties of exponents to simplify expressions

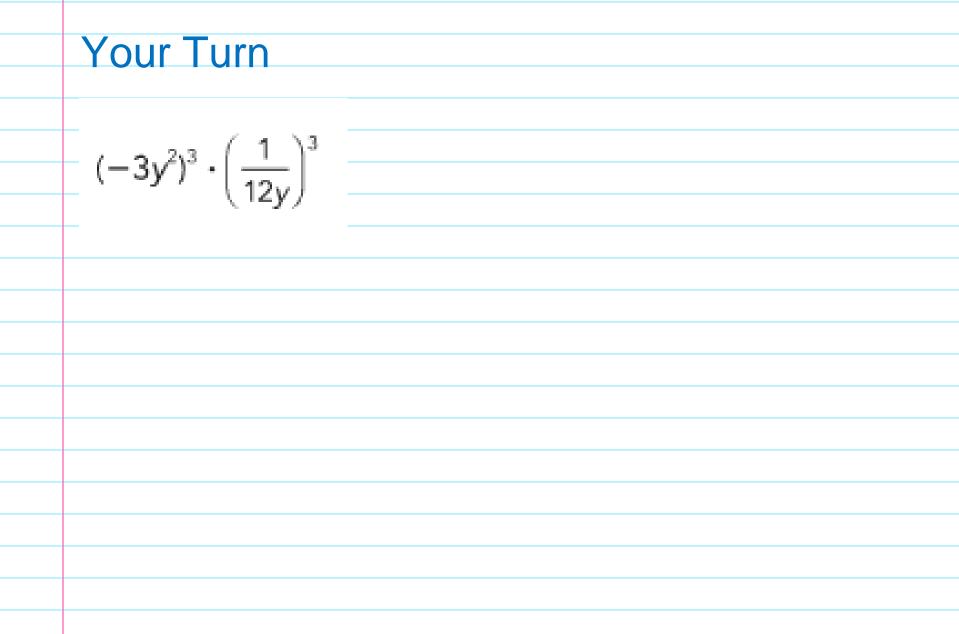
- Common Core State Standards 8.EE.1
- Mathematical Practices 4. Model mathematics. 5. Use tools strategically. 6. Attend to precision.

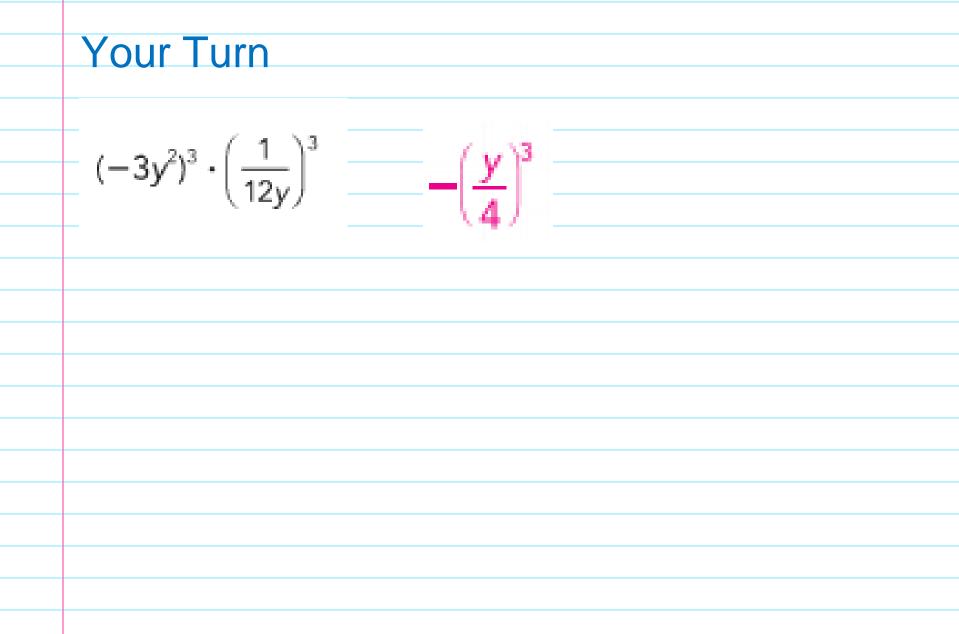


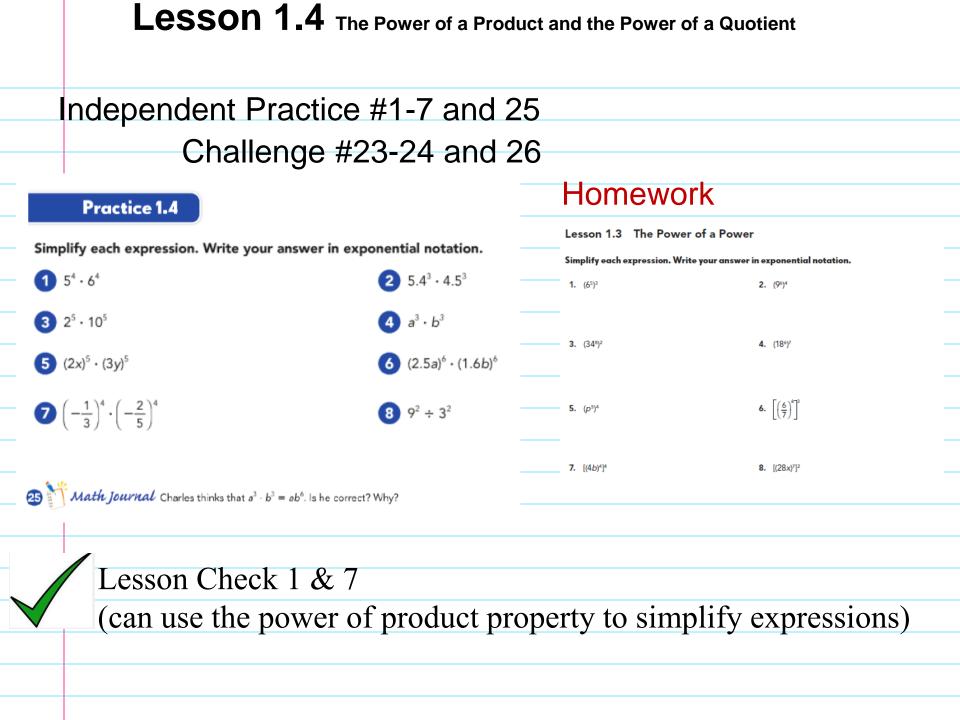
Simplify each expression. Write your answer in exponential notation. **b)** $\left(-\frac{1}{3}\right)^5 \cdot \left(-\frac{2}{5}\right)^5$ c) $(-2.4)^3 \cdot (0.5)^3$ a) $3^4 \cdot 7^4$ Solution Solution Solution $(-2.4)^3 \cdot (0.5)^3 = [(-2.4) \cdot (0.5)]^3$ $3^4 \cdot 7^4 = (3 \cdot 7)^4 \qquad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