Ex: Simplify (write as 1 power):

$$0.3^{-3} \cdot 0.3^{5} \quad \Rightarrow \quad X^{m} \cdot X^{n} = X^{m+n}$$

$$= 0.3^{-3+5} = \boxed{0.3^{2}}$$

Ex: $$\left[\left(\frac{-3}{2}\right)^{-4}\right]^{2} \cdot \left[\left(\frac{-3}{2}\right)^{2}\right]^{3} \quad \Rightarrow \quad \left(X^{m}\right)^{n} = X^{m \cdot n}$$

$$\left(\frac{-3}{2}\right)^{-4 \times 2} \cdot \left(\frac{-3}{2}\right)^{2 \times 3} = \left(\frac{-3}{2}\right)^{-8} \cdot \left(\frac{-3}{2}\right)^{6} \quad \Rightarrow \quad X^{m} \cdot X^{n} = X^{m+n}$$

$$= \left(\frac{-3}{2}\right)^{-8+6} = \left(\frac{-3}{2}\right)^{-2} \quad \Rightarrow \quad \left(\frac{X}{Y}\right)^{-m} = \left(\frac{Y}{X}\right)^{m}$$

$$= \left(\frac{-2}{3}\right)^{2} = \left(\frac{-2}{3}\right)\left(\frac{-2}{3}\right) = \boxed{\frac{4}{9}}$$

Ex: $$\left(\frac{7^{2/3}}{7^{1/3} \cdot 7^{5/3}}\right)^{6} \quad \Rightarrow \quad (X \cdot Y)^{m} = X^{m} \cdot X^{n}$$

$$= \frac{7^{\frac{2}{3} \times 6}}{7^{1/3 \times 6} \cdot 7^{5/3 \times 6}} = \frac{7^{12/3}}{7^{6/3} \cdot 7^{30/3}} = \frac{7^{4}}{7^{2} \cdot 7^{10}} \quad \Rightarrow \quad X^{m} \cdot X^{n} = X^{m+n}$$

$$= \frac{7^{4}}{7^{2+10}} = \frac{7^{4}}{7^{12}} \quad \Rightarrow \quad \frac{X^{m}}{X^{n}} = X^{m-n}$$

$$= 7^{4-12} = 7^{-8} \quad \Rightarrow \quad X^{-m} = \frac{1}{X^{m}}$$

$= 7 \qquad = 7$

$$= \frac{1}{7^8}$$

$\sqrt{}$ HW: Pg. 241
      # 9, 10, 12-14, 16, 21, 22