

# Objective #9

Simplify expressions w/ rational exponents (Page 1 of 2)

Identify the simplified form of the expression:

1.  $9^{-3/2}$     [A]  $\frac{1}{27}$     [B]  $-27$     [C]  $27$     [D]  $\frac{1}{3}$

$$\begin{aligned} 9^{-3/2} &= \frac{1}{9^{3/2}} \\ &= \frac{1}{(9^{1/2})^3} \\ &= \frac{1}{3^3} \\ &= \frac{1}{27} \end{aligned}$$

2.  $\left[ \frac{x^{11/4} y^{-1/4}}{x^{1/3} y^{2/3}} \right]^{12}$     [A]  $\frac{x^{32}}{y^9}$     [B]  $\frac{x^{37}}{y^{11}}$     [C]  $\frac{x^{29}}{y^{11}}$     [D]  $\frac{x^{29}}{y^7}$

① Power Rule

$$\begin{aligned} &\frac{x^{11/4 \cdot 12} y^{-1/4 \cdot 12}}{x^{1/3 \cdot 12} y^{2/3 \cdot 12}} \\ &= \frac{x^{33} y^{-3}}{x^4 y^8} \end{aligned}$$

Quotient Rule

$$x^{33-4} \cdot y^{-3-8}$$

$$x^{29} \cdot y^{-11}$$

$$\frac{x^{29}}{y^{11}}$$

Exponent Rule