

Circle the letter corresponding to your answer. Circle only one answer per question. There is no partial credit on this quiz.

1. T F $\frac{1}{\sqrt[3]{x^2}} = \frac{1}{x^{\frac{2}{3}}}$

$$\begin{aligned}\frac{1}{\sqrt[3]{x^2}} &= \frac{1}{(x^2)^{\frac{1}{3}}} \\ &= \frac{1}{x^{2 \cdot \frac{1}{3}}} \\ &= \frac{1}{x^{\frac{2}{3}}}\end{aligned}$$

So the statement is **True**.

2. T F $(2x + 3)^2 = 4x^2 + 12x + 9$

$$\begin{aligned}(2x - 3)^2 &= (2x - 3)(2x - 3) \\ &= 4x^2 - 6x - 6x + 9 \\ &= 4x^2 - 12x + 9\end{aligned}$$

Therefore the statement is **True**.

3. Simplify the $\frac{x^4}{3x^2 - x - 2} \div \frac{x^3 - 4x}{9x^2 - 4}$

- A. $\frac{x^2(3x - 2)}{(x - 1)(x + 2)}$
- B. $\frac{x^2(3x - 2)}{(x + 1)(x + 2)}$
- C. $\frac{x^3(2x - 2)}{(x - 1)(x + 2)}$
- D. $\frac{x^2(3x + 2)}{(x - 1)(x + 2)}$
- E. None of the above

$$\begin{aligned}\frac{x^4}{3x^2 - x - 2} \div \frac{x^3 - 4x}{9x^2 - 4} &= \frac{x^4}{3x^2 - x - 2} \cdot \frac{9x^2 - 4}{x^3 - 4x} \\ &= \frac{x^4}{(3x + 2)(x - 1)} \cdot \frac{(3x - 2)(3x + 2)}{x(x - 2)(x + 2)}\end{aligned}$$

$$= \frac{x^3(3x - 2)}{(x - 1)(x - 2)(x + 2)}$$

So the answer is **E**.

For the next problem, show all work to receive full credit. No Work = No Credit.

4. Burnem, Inc. manufactures blank CDs and sells these to a distributor in packs of 500 CDs. If Burnem's total cost and total revenue (in dollars) for x packs of 500 CDs are given by

$$C = 2x + 7920 \text{ and } R = 20x$$

how many packs of 500 CDs must be sold for Burnem to break even?

The break even point occurs when revenue=cost, so

$$2x + 7920 = 20x$$

$$7920 = 18x$$

$$x = 440$$

440 packs must be sold.