

MATH 118: Quiz 2

Name: key

Directions:

- * Show your thought process (commonly called "showing your work") when solving each problem for full credit.
- * If you do not know how to solve a problem, try your best and/or explain in English what you would do.
- * Good luck!

1. Simplify: $\frac{x^2 \cdot \sqrt[3]{(x-1)^5}}{\sqrt[3]{(x-1)^2}}$

$$= \frac{x^2 (x-1)^{\frac{5}{3}}}{(x-1)^{\frac{2}{3}}}$$
$$= \frac{x^2 (x-1)^{\frac{5}{3} - \frac{2}{3}}}{1}$$
$$= x^2 (x-1)^{\frac{3}{3}}$$
$$= \boxed{x^2 (x-1)}$$

definition of fractional exponent

LoE # 2

Frac. Prop. 3

2. Expand: $2xh - 3(x+h)^2$

terms are subproblems Deal with them independently first!

$$= 2xh - 3(x^2 + 2xh + h^2)$$
$$= 2xh - 3x^2 - 6xh - 3h^2$$
$$= \boxed{-3x^2 - 4xh - 3h^2}$$

dist law

like terms

3. Completely factor: $8x^2 - 10x - 3 = \boxed{(4x + 1)(2x - 3)}$
 $a=8, b=-10, c=-3$

③ Check against b :

* Try to make a diagonal product close to b .

① For a :

$$\begin{array}{c|c|c|c} 8 & 4 & 2 & 8 \\ \hline 1 & 2 & 4 & 1 \end{array}$$

$\begin{pmatrix} 8 & 1 \\ 1 & -3 \end{pmatrix} \rightarrow 8(-3) + 1 \cdot 1 = -23 \neq -10$ wrong
 bad choice

② For c :

$$\begin{array}{c|c|c|c} 3 & -1 & -3 & 1 \\ \hline -1 & 3 & 1 & -3 \end{array}$$

$\begin{pmatrix} 4 & 1 \\ 2 & -3 \end{pmatrix} \rightarrow 4(-3) + 2 \cdot 1 = -10$ ✓
 good choice

4. Completely factor: $x^{64} - x^{62}$
 two term. GCF:

$$x^{64} - x^{62} = x^{62}(x^2 - 1)$$

$$= \boxed{x^{62}(x-1)(x+1)}$$