

MATH 118: Quiz 1

Name: key

Directions:

- * No calculators.
- * Show your thought process (commonly said as "show your work") when solving each problem for full credit.
- * Good luck!

1. When trying to apply exponent laws, are we allowed to apply them to **terms**? If not, what are we allowed to apply them to?

No, factors only.

2. Simplify the following:

(a) $(2xy)^2 \cdot \frac{2x^{-1}y^2}{4(xy)^{-2}z}$ ④ $= 2^2 x^2 y^2 \cdot \frac{2(xy)^2 y^2}{4xz}$ ④ $= 4x^2 y^2 \cdot \frac{2x^2 y^2 y^2}{4xz}$

① $= \frac{8x^4 y^6}{4xz}$ ② $= \frac{2x^3 y^6}{z}$

fraction cancellation law (#5)

(b) $\left(\frac{x}{y}\right)^2 \cdot \left(\frac{x+1}{x(x-1)}\right)^{-2}$ ⑤ $= \frac{x^2}{y^2} \cdot \left(\frac{x(x-1)}{x+1}\right)^2$ ⑤ $= \frac{x^2}{y^2} \cdot \frac{(x(x-1))^2}{(x+1)^2}$

treat as factor!

④ $= \frac{x^2}{y^2} \cdot \frac{x^2(x-1)^2}{(x+1)^2}$

$= \frac{x^4(x-1)^2}{y^2(x+1)^2}$

frac properly #1

x and 1 are terms. do NOT use exp laws on terms.

look for factors

in exp laws problems.

$$(c) \sqrt[3]{-27} = \boxed{-3} \quad \text{because} \quad (-3)^3 = (-3)(-3)(-3) = -27$$

$$(d) | -|-1| | + |1| = |-1| + |1| = 1 + 1 = \boxed{2}$$

$$(e) \frac{1}{6} + \frac{3}{8}$$

$6 : 2 \cdot 3 \quad \leftarrow \text{need } 2 \cdot 2$
 $8 : 2 \cdot 2 \cdot 2 \quad \leftarrow \text{need } 3$

$$\frac{2 \cdot 2}{2 \cdot 2} \cdot \frac{1}{6} + \frac{3}{8} \cdot \frac{3}{3} = \frac{4}{24} + \frac{9}{24} = \boxed{\frac{13}{24}}$$