MATH 118: Quiz 1

Name: Key

Directions:

- Show your thought process (commonly said as "show 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!

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1. Simplify the following:

$$\frac{(xy)^2}{x^3z^4}\cdot\frac{1}{y^4}$$

LoE (4) $= \dfrac{x^2\cdot y^2}{x^3\cdot z^4}\cdot\dfrac{1}{y^4}$

frac law (1) $= \dfrac{x^2y^2}{x^3y^4z^4}$

LoE (2) $= \dfrac{x^{-1}y^{-2}}{z^4}$

LoE (2) or def of a^{-n} $= \boxed{\dfrac{1}{xy^2z^4}}$

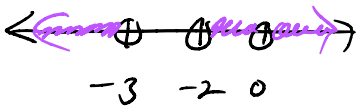
2. Can I cancel the x in

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

Why or why not?

No. The x in $3x^2$ is only a factor in the context of the term $3x^2(x-1)$. It's not a factor in the global context of the denominator; the denominator has terms in the global context.

3. Explain in English what the set



$$(-\infty, -3) \cup (-2, 0) \cup (0, \infty)$$

is describing.

All real numbers less than -3, excluding -3, or greater than -2, excluding -2 and 0.

4. Add $\frac{4}{15} + \frac{3}{10}$

$15 : 3 \cdot 5$ ← missing 2

$10 : 2 \cdot 5$ ← missing 3

multiply by 1 $= \frac{2}{2} \cdot \frac{4}{15} + \frac{3}{10} \cdot \frac{3}{3}$

frac law #1 $= \frac{8}{30} + \frac{9}{30}$

frac law #3 $= \boxed{\frac{17}{30}}$