MATH 118: Quiz 1

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!

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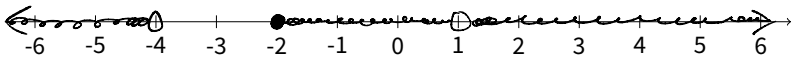
1. Sketch this interval on the real line: $(-\infty, -4) \cup [-2, 1) \cup (1, \infty)$



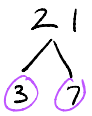
2. Fully simplify the following:

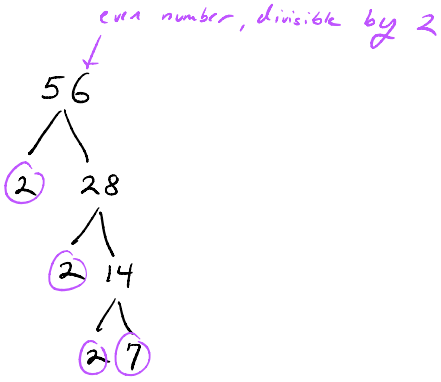
$$\frac{20}{21} + \frac{11}{56}$$

Find LCD

$21 = 3 \cdot 7$ ← missing $2 \cdot 2 \cdot 2 = 8$

$56 = 2 \cdot 2 \cdot 2 \cdot 7$ ← missing 3





$$\frac{20}{21} + \frac{11}{56} = \frac{8}{8} \cdot \frac{20}{21} + \frac{11}{56} \cdot \frac{3}{3}$$

$$= \frac{8 \cdot 20}{8 \cdot 21} + \frac{11 \cdot 3}{56 \cdot 3}$$ frac law 1

$$= \frac{160}{168} + \frac{33}{168}$$

$$= \frac{160 + 33}{168}$$ frac law 3

$$= \boxed{\frac{193}{168}}$$

3. State whether this statement is true or false:

$$1-(x-1)[3-(x-2)(x+3)2] = 1-(x-1)[3-(x-2)(2x+6)]$$

If true, explain what property was used. If false, explain what property was used incorrectly.

True. Distributive property says

$$(x+3)\cdot 2 = (2x+6)$$

4. Using exponent laws, simplify the following:

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

factors

* slow down and cite laws if you make mistakes. It's the fastest way to grow!

$$= \frac{(x-1)^2}{2^3\cdot(x^3)^3\cdot(x-1)^3} \quad \text{Law 4}$$

$$= \frac{(x-1)^2}{8\cdot x^{3\cdot 3}(x-1)^3} \quad \text{Law 3}$$

$$= \frac{(x-1)^{2-3}}{8x^9} \quad \text{Law 2}$$

$$= \frac{(x-1)^{-1}}{8\cdot x^9}$$

$$= \boxed{\frac{1}{8x^9(x-1)}} \quad \text{Law 7}$$