

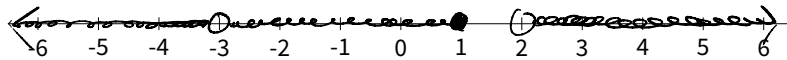
# MATH 118: Quiz 1

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!

1. Sketch this interval on the real line:  $(-\infty, -3) \cup (-3, 1] \cup (2, \infty)$



2. Fully simplify the following:

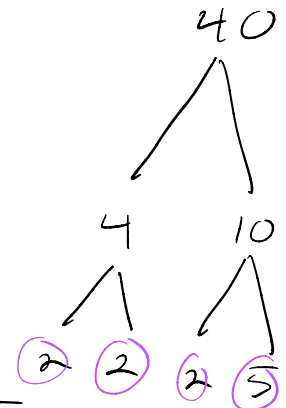
$$\frac{14}{15} + \frac{17}{40}$$

Find LCD

$$15 = 3 \cdot 5 \quad \leftarrow \text{missing } 2 \cdot 2 \cdot 2 = 8$$



$$40 = 2 \cdot 2 \cdot 2 \cdot 5 \quad \leftarrow \text{missing } 3$$



$$\frac{14}{15} + \frac{17}{40} = \frac{8}{8} \cdot \frac{14}{15} + \frac{17}{40} \cdot \frac{3}{3}$$

$$= \frac{112}{120} + \frac{51}{120}$$

$$= \frac{112 + 51}{120}$$

$$= \boxed{\frac{163}{120}}$$

3. State whether this statement is true or false:

$$1 - (x - 1)[3 - 2(x - 2)(x + 3)] = 1 - (x - 1)[3 - (2x - 4)(x + 3)]$$

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

True.  $2(x-2)$  became  $(2x-4)$   
with the distributive property.

4. Using exponent laws, simplify the following:

$$\begin{aligned} \frac{(2x^3(x-1))^4}{x^{10}} &= \frac{2^4 \cdot (x^3)^4 \cdot (x-1)^4}{x^{10}} \\ &= \frac{16 \cdot x^{3 \cdot 4} \cdot (x-1)^4}{x^{10}} \\ &= \frac{16 x^{12} (x-1)^4}{x^{10}} \\ &= \frac{16 x^{12-10} (x-1)^4}{1} \\ &= \boxed{16 x^2 (x-1)^4} \end{aligned}$$

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

Law 4

Law 3

Law 2