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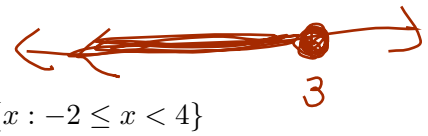
HW 1: §A.2-A.4

Complete the following problems to the best of your ability. **SHOW ALL OF YOUR WORK.** Unshown work will not be graded. You may use a calculator.

1. Write the following sets in interval notation and graph them on a number line.

   (a) $\{x : x \leq 3\}$ $(-\infty, 3]$

   (b) $\{x : -2 \leq x < 4\}$

   $[-2, 4)$ 

   (c) All real numbers between but not including 2 and 10.

   $(2, 10)$ 

2. Find the intersection of the intervals that are solutions for problems 1a and 1b.

   $(-\infty, 3] \cap [-2, 4) = [-2, 3]$

3. Evaluate the following expressions involving absolute value.

   (a) $|6 - 3| = |3| = 3$

   (b) $|-4 + 1| = |-3| = 3$

   (c) $|4 - (-3)| = |4 + 3| = 7$

4. Evaluate or simplify the following expressions.

(a) $\left(\frac{2}{3}\right)^2 = \frac{4}{9}$

(b) $2^3 \cdot 2^3 = 2^6 = 64$

(c) $(x^2y^4)^2 = x^4y^8$

(d) $\left(\frac{16}{25}\right)^{1/2} = \sqrt{\frac{16}{25}} = \frac{4}{5}$

(e) $\left(\frac{x^{-2}y^4}{2z^2}\right)^2 = \left(\frac{y^4}{2x^2z^2}\right)^2 = \frac{y^8}{4x^4z^4}$

Optional Problems:
A.2: All
A.3: All
A.4: All