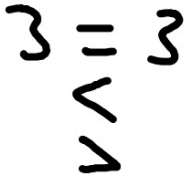
Algebra 1
5.2 Solve inequalities

Solve inequalities by multiplication and division
Write and solve inequalities

opposite
trichotomy




activity: triangle puzzles

whiteboards

**2A.** $-\frac{n}{6} \leq 8$

$-\frac{1n}{6} \leq 8$

$\frac{-6}{1} \cdot \frac{-1}{6}n \leq \frac{8}{1} \cdot \frac{-6}{1}$

$1n \geq \frac{-48}{1}$

$n \geq -48$

**2B.** $-\frac{4}{3}p > -10$

$-\frac{3}{4} \cdot -\frac{4}{3}p > -\frac{10}{1} \cdot -\frac{3}{4}$

$p < \frac{30}{4}$

$p < \frac{15}{2}$

## Example 3 Divide to Solve an Inequality

**Solve each inequality. Graph the solution on a number line.**

**a.** $60t > 8$

**b.** $-7d \leq 147$

## Guided Practice

**3A.** $8p \leq 58$

**3B.** $-42 \geq 6r$

**3C.** $-12h > 15$

**3D.** $-\frac{1}{2}n \leq 6$

$<$ $=$ $>$

## Real-World Example 1 Write and Solve an Inequality

**SURVEYS** Of the students surveyed at Madison High School, fewer than eighty-four said they have never purchased an item online. This is about one eighth of those surveyed. How many students were surveyed?

$-3 \cdot -20 \geq 57$

$\frac{8}{1} \cdot \frac{1}{8} n < 84 \cdot \frac{8}{1}$

$n < 672$

$-3n \geq 57$

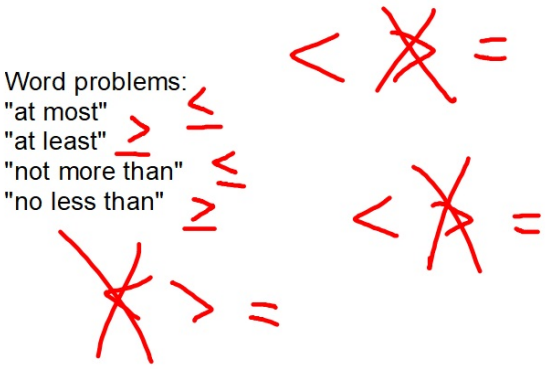
$\frac{-3n}{-3} \quad \frac{57}{-3}$

$n \leq -19$

$n = -20$

Three options:

Word problems:
"at most"
"at least"
"not more than"
"no less than"



Three times a number is at least 108.

$3n \geq 108$

The opposite of four times a number is less than 16.

$-4n < 16$

Negative 3 times a number is at most 99.

$-3n \leq 99$

$\frac{3n}{3} < \frac{0}{3}$

$n < 0$