

**LESSON**  
**2-4**

**Practice A**

**Solving Two-Step and Multi-Step Inequalities**

Fill in the blanks to solve each inequality.

1.  $2x - 5 \leq 7$

+ \_\_\_\_\_ + \_\_\_\_\_

$2x \leq$  \_\_\_\_\_

$\div 2 \quad \div 2$

$x \leq$  \_\_\_\_\_

2.  $-3(k - 1) < 15$

$-3k +$  \_\_\_\_\_  $< 15$

$-$  \_\_\_\_\_  $-$  \_\_\_\_\_

$-3k <$  \_\_\_\_\_

$\div (-3) \quad \div (-3)$

$k$  \_\_\_\_\_

3.  $\frac{1}{2}n + \frac{5}{6} > \frac{2}{3}$

\_\_\_\_\_  $\left(\frac{1}{2}n + \frac{5}{6}\right) >$  \_\_\_\_\_  $\left(\frac{2}{3}\right)$

$3n + 5 >$  \_\_\_\_\_

$-$  \_\_\_\_\_  $-$  \_\_\_\_\_

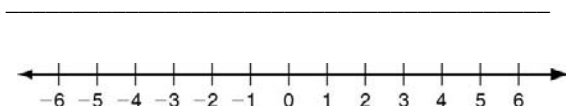
$3n >$  \_\_\_\_\_

$\div$  \_\_\_\_\_  $\div$  \_\_\_\_\_

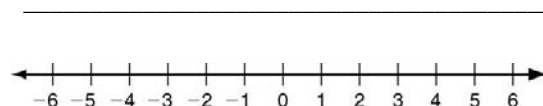
\_\_\_\_\_

Solve each inequality and graph the solutions.

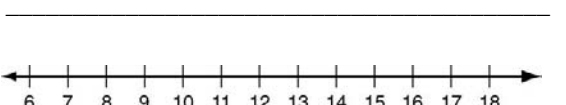
4.  $5x + 7 \geq 2$



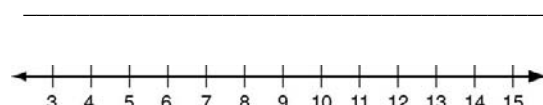
5.  $5(z + 6) \leq 40$



6.  $6 - \frac{a}{3} < 2$



7.  $-\frac{1}{3}x + 4 > 1$



Write and solve an inequality for each problem.

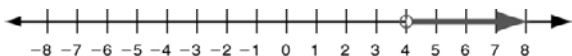
8. Ted needs an average of at least 70 on his three history tests. He has already scored 85 and 60 on two tests. What is the minimum grade Ted needs on his third test?

\_\_\_\_\_

9. A VHS tape holds at most 360 minutes. A tape already has a 120-minute movie on it. How many 30-minute sitcoms can be recorded on the remaining tape?

\_\_\_\_\_

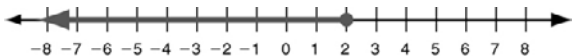
2.  $g > 4$



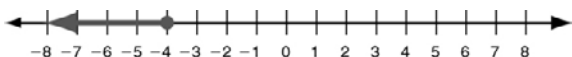
3.  $v < 5$

4.  $m > 12$

5.  $q \leq 2$



6.  $x < -4$



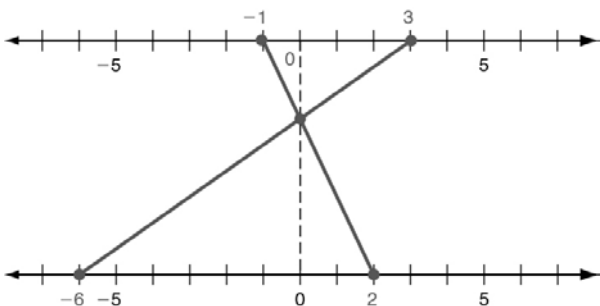
7.  $x \geq -5$

8.  $d > -3$

### Challenge

1.  $2 > -6$

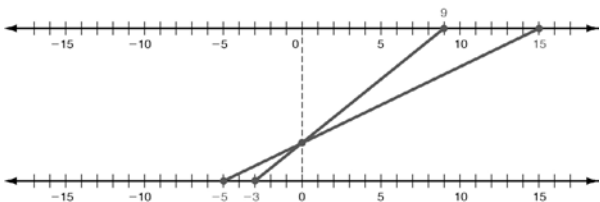
2-3.



4. The segments cross each other showing that the value that was lesser (-1) now corresponds to the value that is greater (2), and vice versa.

5. The ratio of these lengths is the absolute value of -2:  $\frac{\text{bottom}}{\text{top}} = \frac{2.4 \text{ cm}}{1.2 \text{ cm}} = 2$ .

6. yes; the segments cross each other and the ratio of the lengths of the pieces of the dashed segment is still the absolute value of the factor:  $\frac{\text{bottom}}{\text{top}} = \frac{0.9 \text{ cm}}{2.7 \text{ cm}} = \frac{1}{3}$ .



7. The segments would intersect at the midpoint of the dashed line.

### Problem Solving

- $0.50g \leq 3$ ;  $g \leq 6$ ; 0, 1, 2, 3, 4, 5, or 6
- $15d \leq 21$ ;  $d \leq 1.40$ ; up to \$1.40
- $2.5h \leq 7$ ;  $h \leq 2.8$ ; up to 2.8 hours
- $11q \leq 50$ ;  $q \leq 4.54$ ; 0, 1, 2, 3, or 4
- A
- G
- A

### Reading Strategies

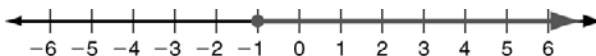
- No; because you are dividing by a positive number.
- $t \leq -20$ ;  $p < -1.5$
- Correct
- Incorrect;  $\leq$  was reversed to  $>$ , instead of  $\geq$ .
- Incorrect; The sign was not reversed.

## 2-4 SOLVING TWO-STEP AND MULTI-STEP INEQUALITIES

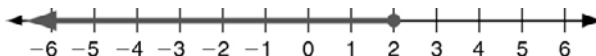
### Practice A

- 5; 5; 12; 6
- 3; 3; 3; 12;  $> -4$
- 6; 6; 4; 5; 5; -1; 3; 3;  $n > -\frac{1}{3}$

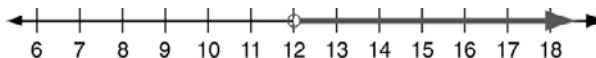
4.  $x \geq -1$



5.  $z \leq 2$



6.  $a > 12$



7.  $x < 9$



8.  $\frac{85 + 60 + x}{3} \geq 70$ ;  $x \geq 65$ ; at least 65

9.  $30s + 120 \leq 360$ ;  $s \leq 8$ ; 0, 1, 2, 3, 4, 5, 6, 7, or 8 sitcoms