Solve and Graph the following in your spirals

VARIABLE

$\frac{x}{4} + 2 \geq 12$

$-2 \quad -2$

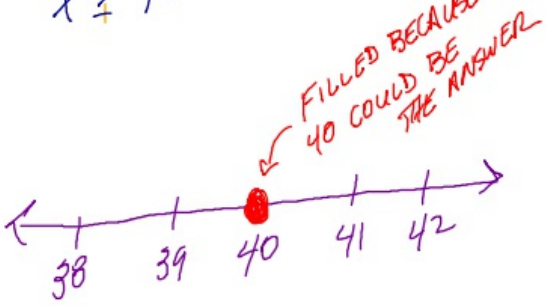
$4 \cdot \frac{x}{4} \geq 10 \cdot 4$

$x \geq 40$

$\frac{41}{4} + 2 \geq 12$

$10\frac{1}{4} + 2 \geq 12$

$12\frac{1}{4} \geq 12$



$3x - 5 < 17$

$+5 \quad +5$

$\frac{3x}{3} < \frac{22}{3}$

$x < 7\frac{1}{3}$

NAME _____ DATE _____ PERIOD _____

Lesson 8 Homework Practice

O ← OPEN CIRCLE FOR < OR >

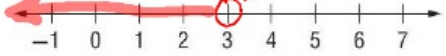
Solve Two-Step Inequalities

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

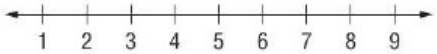
1. $4x - 3 < 9$

X < 3

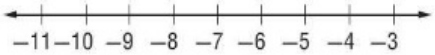
X CANNOT BE 3



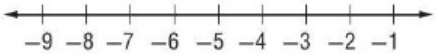
2. $-11 \geq -1 - 2x$



3. $-2 + 2x > -16$

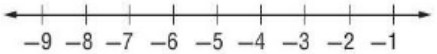


4. $-3x + 2 \leq 17$

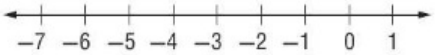


5. $7 < \frac{x}{2} + 4$

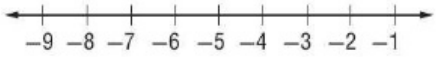
6. $\frac{x}{5} - 1 \geq -2$



7. $-4 \leq 4x + 8$



8. $-3x - 3 > 12$



9. RENTAL BICYCLES A rental company charges \$15 plus \$4 per hour to rent a bicycle. If Margie does not want to spend more than \$27 for her rental, write and solve an inequality to find how many hours she can rent the bicycle and not spend more than \$27. Interpret the solution.

10. MOWING GRASS Rupesh is mowing grass to save money for a vacation. He charges \$12 per yard. Rupesh already has \$40 and wants to have at least \$148 to take with him. Write and solve an inequality to determine how many yards Rupesh needs to mow to have at least \$148. Interpret the solution.

STEP 1 - CANCEL THE CONSTANT TO ZERO
(USE ADDITION OR SUBTRACTION)

STEP 2 - CANCEL THE COEFFICIENT TO 1
(USE MULTIPLICATION OR DIVISION)

1. $4x - 3 < 9$

VARIABLE, CONSTANT, COEFFICIENT

$+3 \quad +3$

$\frac{4x}{4} < \frac{12}{4}$

$x < 3$

$4(2) - 3 \overset{?}{<} 9$

$8 - 3 < 9$

$5 < 9$ ☺

2. $-11 \geq -1 - 2x$

CONSTANT, VARIABLE, COEFFICIENT

$+1 \quad +1$

$\frac{-10}{-2} \geq \frac{-2x}{-2}$

$5 \leq x$

$x \geq 5$

$-11 \overset{?}{\geq} -1 - 2(6)$

$-11 \geq -1 - 12$

$-11 \geq -13$ ☺

Lesson 8 Problem-Solving Practice

Solve Two-Step Inequalities

1. CLOTHING Matilda needs at least \$112 to buy a new dress. She has already saved \$40. She earns \$9 an hour babysitting. Write and solve an inequality to find how many hours she will need to babysit to buy the dress. Interpret the solution.

MATILDA NEEDS TO BABYSIT AT LEAST 8 HOURS

$9h + 40 \geq 112$

SHE NEED AT LEAST \$112

2. SAVINGS Tameca already has \$55 dollars in her savings account. If she puts \$5 per week in her account, write and solve an inequality to find out how many weeks she must save to have at least \$100 in her account. Interpret the solution.

SHE MUST SAVE \$5 PER WEEK FOR AT LEAST 9 WEEKS

AND

$5w + 55 \geq 100$

3. COMMISSION Manuel earns \$400 per week plus a 3% commission on everything he sells. Write and solve an inequality to find out how much he must sell to have a weekly income of at least \$700. Interpret the solution.

4. CARS Remington needs at least \$3,000 to buy a used car. He already has \$1,800. If he saves \$50 per week, write and solve an inequality to find out how many weeks he must save to buy the car. Interpret the solution.

5. POSTCARDS Latrell has \$8 to spend on postcards. He wants to buy one large postcard and some small ones. Write and solve an inequality to find out how many small postcards Latrell can purchase. Interpret the solution.

Postcards
Large \$2
Medium \$1.50
Small \$1.25

6. CARRIAGE RIDE You want to spend at most \$12 on a carriage ride. The driver tells you there is an initial charge of \$5 plus \$0.50 per mile. Write and solve an inequality to find out how many miles you can ride. Interpret the solution.

7. BAKING Corey has 16 cups of flour to make cookies. One batch of cookies takes $2\frac{1}{2}$ cups of flour. If he must save 6 cups of flour for other baking, write and solve an inequality to find out how many batches of cookies he can make. Interpret the solution.

8. ENTERTAINMENT Sylvia needs at least \$310 for a new audio system. She has already saved \$120. She earns \$10 per hour at her part-time job. Write and solve an inequality to find how many hours she will need to work to buy the system. Interpret the solution.

Lesson 8 Problem-Solving Practice

Solve Two-Step Inequalities

1. $40 + 9h \geq 112$, -40, $\frac{9h}{9} \geq \frac{72}{9}$, $h \geq 8$
2. $55 + 5w \geq 100$, -55, $\frac{5w}{5} \geq \frac{45}{5}$, $w \geq 9$
4. $1{,}800 + 50w \geq 3{,}000$, $-1{,}800$, $\frac{50w}{50} \geq \frac{1{,}200}{50}$, $w \geq 24$

1. CLOTHING Matilda needs at least \$112 to buy a new dress. She has already saved \$40. She earns \$9 an hour babysitting. Write and solve an inequality to find how many hours she will need to babysit to buy the dress. Interpret the solution.

MATILDA NEEDS TO WORK AT LEAST 8 HOURS TO BUY THE DRESS. $40 + 9h \geq 112$, $h \geq 8$

2. SAVINGS Tameca already has \$55 dollars in her savings account. If she puts \$5 per week in her account, write and solve an inequality to find out how many weeks she must save to have at least \$100 in her account. Interpret the solution.

TAMECA NEEDS TO MAKE THE \$5 DEPOSITS FOR AT LEAST 9 WEEKS $55 + 5w \geq 100$, $w \geq 9$

3. COMMISSION Manuel earns \$400 per week plus a 3% commission on everything he sells. Write and solve an inequality to find out how much he must sell to have a weekly income of at least \$700. Interpret the solution.

4. CARS Remington needs at least \$3,000 to buy a used car. He already has \$1,800. If he saves \$50 per week, write and solve an inequality to find out how many weeks he must save to buy the car. Interpret the solution.

REMINGTON HAS TO SAVE \$50 A WEEK FOR AT LEAST 24 WEEKS. $1{,}800 + 50w \geq 3{,}000$, $w \geq 24$

5. POSTCARDS Latrell has \$8 to spend on postcards. He wants to buy one large postcard and some small ones. Write and solve an inequality to find out how many small postcards Latrell can purchase. Interpret the solution.

Postcards	
Large	\$2
Medium	\$1.50
Small	\$1.25

6. CARRIAGE RIDE You want to spend at most \$12 on a carriage ride. The driver tells you there is an initial charge of \$5 plus \$0.50 per mile. Write and solve an inequality to find out how many miles you can ride. Interpret the solution.

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< IS LESS THAN
$4 < 6$

≤ IS LESS THAN OR EQUAL TO
$4 \leq 4$

> IS GREATER THAN
$5 > 4$

≥ IS GREATER THAN OR EQUAL TO
$5 \geq 5$
AT LEAST

1. $40 + 9h \geq 112$

$-40 \quad -40$

$\frac{9h}{9} \geq \frac{72}{9}$

$h \geq 8$

2. $55 + 5w \geq 100$

$-55 \quad -55$

$\frac{5w}{5} \geq \frac{45}{5}$

$w \geq 9$

4. $1{,}800 + 50w \geq 3{,}000$

$-1{,}800 \quad -1{,}800$

$\frac{50w}{50} \geq \frac{1{,}200}{50}$

$w \geq 24$

① $9h + 40 \geq 112$

$-40 \quad -40$

$\frac{9h}{9} \geq \frac{72}{9}$

$h \geq 8$

MATILD NEEDS TO BABYSIT AT LEAST 8 HOURS

② $5w + 55 \geq 100$

$-55 \quad -55$

$\frac{5w}{5} \geq \frac{45}{5}$

$w \geq 9$