

# ***In-Class Workbook***

## **Expressions and Equations:**

### Unit 5: Applying & Writing Equations and Inequalities

***How can using equations and inequalities be useful in real life?***

Standard	Description
7.EE.A.1	→ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problems, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

Packet Completion Rubric				
4	3	2	1	0
Workbook demonstrates significant effort. Student utilizes notes to help extend their thinking, writing questions, comments or reactions to the content.	Workbook demonstrates some effort. Student takes notes but could further understanding by questioning and interacting with the material.	Workbook shows little effort. Student takes notes sporadically, and could benefit from greater consistency with the material.	Workbook shows little to no effort. Student does not take notes and must demonstrate future interaction with the material to aid understanding.	Workbook is entirely incomplete or not turned in.

Grading Breakdown:    3.5 - 4 = A    3 - 3.4 = B    2.5 - 2.9 = C    2 - 2.4 = D    0 - 1.9 = F

*I am a person who believes in **asking questions**, in not conforming for the sake of conforming. I am deeply dissatisfied - about so many things, about injustice, about the way the world works - and in some ways, my dissatisfaction drives my storytelling.*  
Chimamanda Ngozi Adichie

## **Unit 5 Guiding Question:**

***How can using  
equations and  
inequalities be  
useful in real life?***

<b><u>Lesson Objectives</u></b>	
<b>Lesson</b> After completing a lesson, check the box	<b>I can...</b> After completing each lesson, you are on the right track if you can confidently state “I can...”
<input type="checkbox"/> 5.1	Write and solve one-step equation word problems
<input type="checkbox"/> 5.2	Write and solve one-step inequality word problems
<input type="checkbox"/> 5.3	Write and solve one-step equation & inequality word problems
<input type="checkbox"/> 5.4	Write and solve two-step equation word problems
<input type="checkbox"/> 5.5	Write and solve two-step inequality word problems
<input type="checkbox"/> 5.6	Write and solve two-step equation & inequality word problems

<b>Lesson</b>  <b>5.1</b> <b>DO-NOW</b>	<p align="center"><b>Back to Popeyes!</b></p> <p>Your friend wants to know how much each chicken sandwich costs? <b>You spent a total of \$12 on chicken sandwiches.</b>  <b>How much did each one cost?</b></p> <p>1 chicken sandwich  1 chicken biscuit  1 coke  1 sprite  1 chicken biscuit  1 chicken biscuit  2 chicken strips  3 chicken sandwiches  1 chicken strips  2 fries  1 sprite  5 biscuits</p>	<p align="center"><b>THE CHALLENGE:</b></p> <p><b>Create an equation</b> to show how you got your answer! Write an equation here.</p>
<b>Homework Reminder</b>	<p align="center">This is where you will shade in the box if you turned in your homework.  There is no homework due today! :)  <b>“Knowledge is of no value unless you put it to practice.” - Anton Chekhov</b></p>	
<b>Check-In</b>	<p>How are you doing today?</p> <p>How have you seen or used algebra in real life?</p>	

### Explore: Writing and solving one-step equations with the bar model!

**DIRECTIONS:** Model the given equation with the bar models or by drawing.

<p><i>Example: <math>3x = 12</math></i></p> <p><b>Solution:</b>_____</p>	<p><i>Example Bar Model:</i></p> <table><tr><td><b>x</b></td><td><b>x</b></td><td><b>x</b></td></tr><tr><td colspan="3"><b>12</b></td></tr></table>	<b>x</b>	<b>x</b>	<b>x</b>	<b>12</b>								
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<b>a</b>													
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## Strategies for Solving Word Problems

### 1. Draw a Model OR Use a Bar Model

Using a model is a great way to visualize what is happening in the problem.

As you use a model, fill in your **known values** and what you are **trying to find**.

### 2. Identify the Variable

Ask yourself - "What am I trying to find?"

**Select a variable** and **state what it equals**.

### 3. Write the equation

Using your **variable** and **known values**, write an equation with the information.

## Strategies for Solving Word Problems

A scuba diver is exploring a reef at an elevation of -12.2 meters. As the diver rises to the surface, she plans to stop and rest briefly at a reef that has an elevation of -4.55 meters. Write and solve an equation to find the vertical distance the diver will travel.

Draw A Model

Identify The Variable

Solve

Write The Equation

An airplane descends 1.5 miles to an elevation of 5.2 miles above sea level. Write and solve an equation to find the elevation of the plane before its descent.

Draw A Model

Identify The Variable

Solve

Write The Equation

Lily babysits on the weekends. She charges \$6 per hour. Last weekend she made a total of \$42. How many hours did she babysit? Write an equation and solve.

Draw A Model

Identify The Variable

Solve

Write The Equation

**Key Words for Knowing What Operation is Being Used!**

## FOLDABLE ACTIVITY

**Practice with Your Foldable! DIRECTIONS:** Highlight keywords and write & solve an equation.

1. The sum of a number and 2 is -5.

2. A number decreased by 50 is 14.

3. Twice a number  $y$  is 34.

4. An amount  $a$  is split by 2 people is 10.

5. The difference of  $m$  and 7 is 4.

6. The product of 5 and  $c$  is 105.

7. The quotient of a number  $j$  and 7 is 6.

8. A number decreased by 22 is 13.

## Let's Practice

You and your family plan a hike for next weekend. Your starting elevation on the hike is 235 feet above sea level. The elevation at the end of the hike is 875 feet above sea level. Write and solve an equation to find how much elevation you will gain on your hike.

Draw A Model

Identify The Variable

Solve

Write The Equation

Between the hours of 10pm and 6am the temperature decreased an average of  $\frac{3}{4}$  of a degree per hour. How many hours will it take for the temperature to decrease by 5 degrees Fahrenheit? Write an equation and solve.

Draw A Model

Identify The Variable

Solve

Write The Equation

Josh is saving money for a new bike. The bike costs \$78, including tax. Josh has already saved \$42. How much more does he need to save? Write an equation and solve. Let  $s$  represent the money he needs to save.

Draw A Model

Identify The Variable

Solve

Write The Equation

**Guided Practice - Task Cards**

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: _____	Task Card: _____
Task Card: _____	Task Card: _____
Task Card: _____	Task Card: _____
Task Card: _____	Task Card: _____

***Check your work with your teacher : \_\_\_\_\_***



## Lesson

## 5.2

DO-NOW

Your parents send you to the store to buy some groceries. They give you \$30 to spend. **Which of the following is true and will make your parents happy?**

- A. You can spend **more than** \$30
- B. You can spend **less than** \$30
- C. You can spend **exactly** \$30
- D. You can pocket the money and hope your friends have what your parents needed.

**Fill in the box with an inequality sign.**

What you spend  \$30

Explain why you picked that inequality sign:

Homework  
Reminder

Shade this box if you turned in your homework today! :)  
***“Knowledge is of no value unless you put it to practice.” - Anton Chekhov***

## Check-In

How are you doing today?

How have you seen or used algebra in real life?

## Direct Instruction

## Remember Our Good Old Friend BUCKS

- B - \_\_\_\_\_ the main question(s)
- U - \_\_\_\_\_ only the parts needed to answer the question(s)
- C - \_\_\_\_\_ vocab, key words, and important units
- K - \_\_\_\_\_ irrelevant information
- S - \_\_\_\_\_!



*Most importantly...*  
 use your  
**CRITICAL  
 THINKING  
 SKILLS!**

## Key Words For Understanding What Kind of Inequality to Use

$>$	$\geq$	$<$	$\leq$

## Strategies for Solving Inequality Word Problems

1. Use \_\_\_\_\_ to find key information from problem and write down information.
2. Find the \_\_\_\_\_ and what it represents
3. Find the \_\_\_\_\_ or Mathematical Operation between the constant/coefficient and variable
4. Find the \_\_\_\_\_ to use in problem
5. \_\_\_\_\_ and find what solution means

## Let's Try Together!

Joe's mom only wants him to watch no more than 5 hours or 300 Minutes of TV a week. The average amount of time that TV show that Joe watches is 50 Minutes. How many TV shows can Joe watch a week

Known information:	Variable and what it represents:	What's the relationship?	Inequality:
Full Inequality Equation	Solution and what it means:		

Dani is working a job where she makes \$8.00 a hour. She need to make a minimum of \$800 a month to pay her necessary expenses. What is the minimum number of hours she needs to work a month?

Known information:	Variable and what it represents:	What's the relationship?	Inequality:
Full Inequality Equation	Solution and what it means:		

You spend \$25 to buy supplies for making gloves, and plan on selling them for \$5 each pair. Write an inequality to find the minimum number of gloves you have to sell in order to make a profit.

Known information:	Variable and what it represents:	What's the relationship?	Inequality:
Full Inequality Equation	Solution and what it means:		

At an orange picking farm, you are allowed to pick up to 40 oranges a day and you have already picked 17. Find the possible number of oranges you can still pick today. (*Use whatever method you would like :)* )

Guided Practice		
<b>Directions:</b> You have been given several inequality problems to match to inequality equations. Make sure to Identify the correct inequality term to use. After you have matched all of the Problems to Equations; Match the Equations to the Solutions		
Inequality Problems	Inequality Equations	Solutions

The sum of a number and 10 is less than 45. What are the range of numbers that can satisfy these requirements?

$$10 + x > 45$$

$$x < 35$$

Tara has to save at least \$45 to buy a pair of shoes that she wants. She already has \$10 saved; How much money does she need?

$$10 + x \geq 45$$

$$x > 35$$

Tommy can spend a maximum of \$45 at the shopping mall. He has already spent \$10 playing at the arcade. How much more money can he spend?

$$10 + x \leq 45$$

$$x \leq 35$$

The sum of a number and 10 is above 45. What are the range of numbers that can satisfy these requirements

$$x + 10 < 45$$

$$x \geq 35$$

***Finale! Solve this problem by writing & solving a one-step inequality!***

Corey has \$1200 in her bank account. In order, to keep her bank account open she must have more than \$444 in her bank account. Corey's only expense is that she spends \$42.00 a week on food. How many weeks can she go before adding more to her bank account?

Known information:	Variable and what it represents:	What's the relationship?	Inequality:
Full Inequality Equation	Solution and what it means:		

## Lesson

**5.3**

## DO-NOW

**Write and solve an *equation or inequality* for the scenario below.**

A pilot must log at least 1000 training hours to fly the Kardashian's private jet. K'Shawn has logged 250 hours. How many more hours must he log in order to fly the Kardashians on their next vacation?

***Write and Solve here! Explain why you chose to write an equation or inequality?***

**Homework Reminder**

Shade this box if you turned in your homework today! :)  
***"Knowledge is of no value unless you put it to practice." - Anton Chekhov***

**Check-In**

How are you doing today?

How have you seen or used algebra in real life?

**Direct Instruction**

**What is the difference between writing equations & writing inequalities?**

Equations	Inequalities
Example:	Example:

***We must read the scenario very carefully. Look for keywords...***

Equations	Inequalities	
is find the <i>single value</i> how many ( <i>units</i> )...	is more than, is greater than, is larger than, above	>
	minimum, at least, is not less than, not smaller than	≥
	is smaller than, is less than, below	<
	maximum, at most, not more than, is not greater than	≤

**Look Back At It! Look back at the Do Now below...Notice Any Keywords?**

A pilot must log at least 1000 training hours to fly the Kardashian's private jet. K'Shawn has logged 250 hours. How many more hours must he log in order to fly the Kardashian's on their next vacation?

**Examples: Notice any keywords?****For each scenario...**

1. Decide whether the scenario is best represented by an equation or inequality.
2. Write the equation or inequality.
3. Solve & Check.

Imagine that you are working as a computer programmer in a company that makes computer games. You are getting paid \$50 per hour and at the end of the day, you earned \$400. How many hours did you have to work to earn that kind of money?

Ms. Nepshinsky charges \$3 for a pencil to students who forgot to bring one to class. If Abby was charged at least \$45 in quarter one, how many times did she forget her pencil?

Kathryn and her best friend found some money under the couch. They split the money evenly, each getting \$24.18. How much money did they find?

**Read. Think. Repeat.**

Look for keywords: determine if you should write an equation or inequality for the following scenario.

Pranav and seven of his friends went out to eat. They decided to split the bill evenly. Each person paid \$6.36.  
What was the total bill?

While training for a marathon, you try to consume at least 2400 calories a day. For one meal, you eat 500 calories. How many do you have for the rest of the day after you eat?

Find the price of one candy bar if five candy bars cost \$26.05.

## Guided Practice

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

***Sign and Check with your teacher:*** \_\_\_\_\_

***What mistakes are you commonly making?***

<b>Lesson</b>  <b>5.4</b> <b>DO-NOW</b>	<p align="center"><b>Back to Popeyes!</b></p> <p>Your friend wants to know how much each chicken sandwich costs? You spent a total of \$15 on <b>chicken sandwiches</b> and a <b>coke</b>. The coke costs \$3.</p> <p align="center"><b><i>How much did each one cost?</i></b></p> <p>1 chicken sandwich  1 chicken biscuit  1 coke  1 sprite  1 chicken biscuit  1 chicken biscuit  2 chicken strips  3 chicken sandwiches  1 chicken strips  2 fries  1 sprite  5 biscuits</p>	<p align="center"><b>THE CHALLENGE:</b></p> <p><b><i>Create an equation</i></b> to show how you got your answer! Write and solve the equation here.</p> <p align="center"><i>How is this different than the Lesson 5.1 Do Now?</i></p>
<b>Homework Reminder</b>	<p align="center">Shade this box if you turned in your homework today! :)</p> <p align="center"><b><i>“Knowledge is of no value unless you put it to practice.” - Anton Chekhov</i></b></p>	
<b>Check-In</b>	<p>How are you doing today?</p> <p>How have you seen or used algebra in real life?</p>	

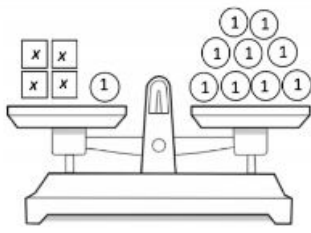
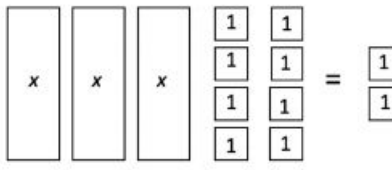
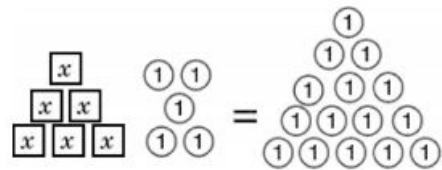
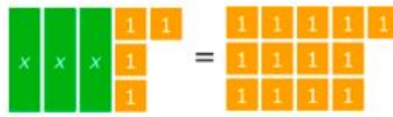
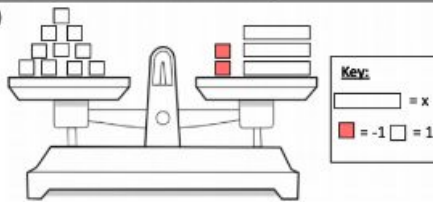



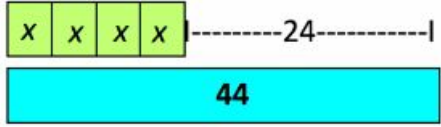
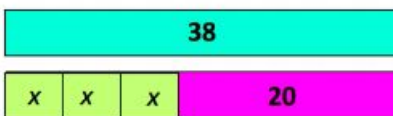
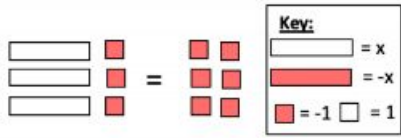




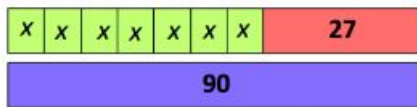
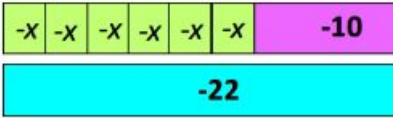





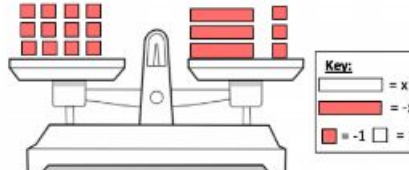
### Hey, that's cool! 6 Interesting Facts About Algebra!

- Origin of the Word:** Coming from a Latin variant of Arabic word al-jabr, it came from book's title "Hidab al- jabrwal- muqubala" by mathematician from Arab-Mohammed ibn-Musa al-Khowarizmi in 825 A.D.
- Origin of Subject:** The roots of this subject dates back to 1900 BC when it was traced that it was Babylonians who came up with Algebra.
- Algebraist:** If you think that one class of Algebra makes your head spin, imagine a person who specializes in the subject. Apparently these specialists are given a name. They are known as Algebraist. THEY DESERVE IT!
- Basketball and Algebra:** Basketball has a strong association with Algebra. Davidson College associate math professor Tim Chartier developed algebraic formula for NCAA basketball tournament. Even the famous NBA 24 second shot was also created using an algebraic equation.
- Algebra and Other Subject:** If you still think that Algebra is not an important subject, you are wrong. It is used in other fields like science, engineering, economics, mathematics and medicine.
- Hollywood and Algebra:** If you still don't think that Algebra is not an important subject, you are wrong. It is used in other fields like science, engineering, economics, mathematics and medicine.



## Explore: Writing and solving two-step equations from word problems with models!

**DIRECTIONS:** Write and solve a two-step equation that corresponds to each model!

<p>1.)</p> 	<p>2.)</p> 	<p>3.)</p> 
<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>
<p>4.)</p> 	<p>5.)</p>  <p>Key:   = x   = -1    = 1</p>	<p>6.)</p> 
<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>
<p>1.)</p> 	<p>2.)</p>  <p>Key:   = x   = -x   = -1    = 1</p>	<p>3.)</p> 
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<p>4.)</p> 	<p>5.)</p>  <p>Key:   = x   = -x   = -1    = 1</p>	<p>6.)</p> 
<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>	<p>Equation: _____</p> <p>Solution: _____</p>

**Explore: Writing and solving one-step equations from word problems with steps!**

1. Ann took a taxi home from the airport. The taxi fare was \$2.00 per mile, and she gave the driver a tip of \$5 dollars. Ann paid a total of \$27 dollars. What is the total number of miles she traveled?

STEPS	ACTIONS
1: What are our known values?	
2: Identify the variable. (What is the problem we are trying to find out?)	
3: Write an equation	
4: Solve	

2. Heather practices soccer and piano. Each day she practices piano for 2 hours. After 5 days, she practiced both piano and soccer for a total of 20 hours. Assuming that she practiced soccer the same amount of time each day, how many hours per day,  $h$ , did Heather practice soccer?

STEPS	ACTIONS
1: What are our known values?	
2: Identify the variable. (What is the problem we are trying to find out?)	
3: Write an equation	
4: Solve	

# Which One?! Matching Game!

Which word problem(s) does the follow equation correspond to?

$$10p - 5 = 75$$

Josh bought 10 plate lunches for his friends he spent 5 dollars on tax and spent a total of 75. How much did josh spend on each plate lunch?

Josh had a 75 dollars to spend on his friends 10 plate lunches he had a 5 dollar off coupon as well. How much did josh spend on each plate lunch?

Explain Why:

Which word problem(s) does the follow equation correspond to?

$$2x + 25 = 150$$

Jessica wanted to go to TJ Maxx to buy some new things for her house. She wanted to buy two matching tables and some decorations to go on top. She planned to spend \$25 on decorations. She had 150 dollars to spend. How much did Jessica spend on each table?

Jessica went to TJ Maxx to go shopping. She had gone into the store with 150 dollars and left with 25 dollars left over. She had purchased two matching tables. How much did Jessica spend on each table?

Explain Why:

## Let's Practice

1. It costs \$12 to attend a golf clinic with a local pro. Buckets of balls for practice during the clinic cost \$3 each. How many buckets can you buy at the clinic if you have \$30 to spend?

What is the unknown? \_\_\_\_\_

Define the variable. \_\_\_\_\_ = \_\_\_\_\_

Write an equation \_\_\_\_\_ = \_\_\_\_\_

## Solve Here!

**Solution:** \_\_\_\_\_

<p>2. Ben has \$145 in his savings account. He earns \$36 a week mowing lawns. If Ben saves all of his earnings, after how many weeks will he have \$433 saved?</p> <p>What is the unknown? _____</p> <p>Define the variable. _____ = _____</p> <p>Write an equation _____ = _____</p>	<p><b>Solution:</b> _____</p>
<p>3. An online retailer charges \$6.99 plus \$0.55 per pound to ship electronics purchases. How many pounds is a PS4 for which the shipping charge is \$11.94?</p> <p>What is the unknown? _____</p> <p>Define the variable. _____ = _____</p> <p>Write an equation _____ = _____</p>	<p><b>Solution:</b> _____</p>
<p>4. Caitlin has a \$10 gift certificate to the music store. She has chosen a number of CDs from the \$7 bargain bin. If the cost of the CDs is \$32 after the gift certificate is credited, how many CDs did Caitlin buy?</p> <p>What is the unknown? _____</p> <p>Define the variable. _____ = _____</p> <p>Write an equation _____ = _____</p>	<p><b>Solution:</b> _____</p>
<p>5. Mrs. Jackson earned a \$500 bonus for signing a one-year contract to work as a nurse. Her salary is \$22 per hour. If her first week's check including the bonus is \$1,204, how many hours did Mrs. Jackson work?</p> <p>What is the unknown? _____</p> <p>Define the variable. _____ = _____</p> <p>Write an equation _____ = _____</p>	<p><b>Solution:</b> _____</p>

6. Morgan subscribes to a website for processing her digital pictures. The subscription is \$6.95 per month and 4 by 6 inch prints are \$0.29 each. How many prints did Morgan purchase if the charge for January was \$17.10?

What is the unknown? \_\_\_\_\_

Define the variable. \_\_\_\_\_ = \_\_\_\_\_

Write an equation \_\_\_\_\_ = \_\_\_\_\_

**Solution:** \_\_\_\_\_

### Guided Practice

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

Task Card: \_\_\_\_\_

**Sign and Check with your teacher:** \_\_\_\_\_

**What mistakes are you commonly making?**

## Lesson

## 5.5

DO-NOW

Describe the difference between the scenarios below: Circle any KEY words. Which inequality sign would you use for each scenario? Fill the correct sign in the blank provided.

 $<, \leq, >, \geq$ 
**SCENARIO #1:**

You play outside at least 2 hours every day.  
:)

**Inequality sign:**

Time spent outside \_\_\_\_\_ 2 hours

**SCENARIO #2:**

You play outside less than 2 hours every day.

**Inequality sign:**

Time spent outside \_\_\_\_\_ 2 hours

**SCENARIO #3:**

You play outside more than 2 hours every day.

**Inequality sign:**

Time spent outside \_\_\_\_\_ 2 hours

**SCENARIO #4:**

You play outside at most 2 hours every day.

**Inequality sign:**

Time spent outside \_\_\_\_\_ 2 hours

**Homework  
Reminder**

Shade this box if you turned in your homework today! :)  
**“Knowledge is of no value unless you put it to practice.” - Anton Chekhov**

**Check-In**

How are you doing today?

How have you seen or used algebra in real life?

**Math Chat Refresher!**

What are some KEYWORDS to look for in an inequality word problem?

Can you think of an example from your real life?!

## Explore: Writing and solving two-step inequalities from word problems with models!

<p>1.)</p>	<p>2.)</p>	<p>3.)</p>
<p>Inequality: _____</p> <p>Solution: _____</p>	<p>Inequality: _____</p> <p>Solution: _____</p>	<p>Inequality: _____</p> <p>Solution: _____</p>
<p>4.)</p>	<p>5.)</p>	<p>6.)</p>
<p>Inequality: _____</p> <p>Solution: _____</p>	<p>Inequality: _____</p> <p>Solution: _____</p>	<p>Inequality: _____</p> <p>Solution: _____</p>

## Solve and Write Two-Step Inequalities from Word Problems

**EXAMPLE:** Andy can spend up to \$60 each month for his cellphone service. The cell phone company charges \$21 for his plan and \$0.75 for each text message. How many text messages can Andy send without going over \$60?

<b>COST PER TEXT MESSAGE</b>	<b>PLUS</b>	<b>CHARGE FOR PLAN</b>	<b>CAN SPEND UP TO OR EQUAL TO</b>	<b>TOTAL COST</b>
$\$0.75x$	+	$\$21$	$\leq$	$\$60$
<b>VARIABLE:</b> the number of text messages is unknown		<b>CONSTANT:</b> the price of the cell phone plan, it is a fixed amount		<b>CONSTANT:</b> the total value
<b>INEQUALITY:</b> $0.75x + 21 \leq 60$			<b>GRAPH:</b>	

## EXAMPLE ONE

Benny wants to spend less than \$550 on a new gaming system and headset. He wants to buy 5 video games along with a headset for \$105. Write and solve an inequality that can be used to determine,  $v$ , the amount he can spend on each video game?

**SOLVE:**

**GRAPH:**



## EXAMPLE TWO

Hannah already has \$82 in her savings account. If she puts \$20 per week in her account, write and solve an inequality to determine,  $w$ , the number of weeks she needs to save to have a minimum of \$242 in her savings account?

**SOLVE:**

**GRAPH:**



### You Try!

**PROBLEM 1:** Jeffery has \$48 to spend on 7 pizzas for a sleepover. If he has a \$15 coupon, find  $p$ , the amount he can spend on each pizza?

**SOLVE:**

**GRAPH:**

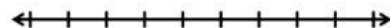


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**PROBLEM 2:** The band wants to collect at least 225 items to sell at a band concert. So far, the band has collected 140 items and has only 5 more days to collect items. Find  $x$ , the number of items that must be collected daily to reach the goal?

**SOLVE:**

**GRAPH:**





## Guided Practice - Cut & Paste

**DIRECTIONS:** Cut the cards your teacher gives you apart. Then glue the inequality, solution and graph to the correct situation on this page.

SITUATION	Phil needs to run at least 30 miles this week for his training. If he has already run 18 miles this week, then how many miles should he run on each of the 3 remaining days this week?	Haley has a \$30 gift card that she can spend at the store. She has already bought an \$18 shirt, and she wants to buy \$3 bracelets with the leftover money on the card. How much can she spend on each bracelet without going over the card's limit?	Luke has \$9.00 to spend at the concession stand. He buys a hot dog for \$1.50, and he wants to purchase some Sour Straws for \$0.75 each. How many Sour Straws can Luke purchase with the money that he has?
INEQUALITY			
SOLUTION			
GRAPH			

**SITUATION**

Lauren wants to have more than \$90 in her account before she will go shopping for new clothes. Right now she has \$15, and she is going to babysit to earn \$7.50 an hour. How many hours will Lauren need to babysit before she can go shopping?

Chris is selling chocolates for a fundraiser, and if he sells over \$115 worth of candy, he'll win a prize. If chocolates sell for \$5.75 a box, and Chris has already sold \$28.75 worth of candy, then how many more boxes does he have to sell in order to win a prize?

Ralph won't sell the Christmas trees on his farm until they are a minimum of 70 inches tall. The trees he has now are an average of 12 inches tall, and the trees grow about  $\frac{1}{2}$  inch every month. How many months will it be until Ralph will sell his trees?

**INEQUALITY****SOLUTION****GRAPH**

## Lesson

**5.6**

DO-NOW

**STATEMENT #1:**

Your mom tells you to spend at least \$20 on ingredients for your favorite Thanksgiving dish.

**STATEMENT #2:**

Your mom tells you to spend exactly \$20 on ingredients for your favorite Thanksgiving dish.

**STATEMENT #3:**

Your mom give you \$20 to spend on ingredients for your favorite Thanksgiving dish.

*Hint\* Think about the situations that would make your parent happy for each statement.*

Describe the difference between the statements to the left: **Circle any KEY words.**

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**WHAT IS YOUR FAVORITE THANKSGIVING DISH?!**

**WHAT ARE YOU THANKFUL FOR THIS SEASON?!**

**Homework Reminder**

Shade this box if you turned in your homework today! :)  
**“Knowledge is of no value unless you put it to practice.” - Anton Chekhov**

**Check-In**

How are you doing today?

How have you seen or used algebra in real life?

**Direct Instruction****For each scenario...**

1. Decide whether the scenario is best represented by an equation or inequality.
2. Write the equation or inequality (using the strategies we learned in previous lessons!).
3. Solve & Check.

**Scenario 1:** One-half the sum of a number and 254 is no less than 454. What is the minimum value of the number?

**Scenario 2:** Maria bought seven boxes. A week later half of all her boxes were destroyed in a fire. There are now only 22 boxes left. With how many did she start?

**Scenario 3:** The sum of three consecutive numbers is 72. What are the smallest of these numbers?

## Let's Practice!

### Thanksgiving Matching Game

**Directions:** To win the game, be the first group to match all words problems (turkeys) with the correct inequality or equation (apple pie) AND the correct solution (pumpkin)!

Word Problem # 	Equation or Inequality  (Please show ALL work in this column)	Solution 

## Guided Practice!

**Directions:** Select the inequality or equation that represents each word problem below. Then, use the letter that's next to that choice to solve the riddle below!



If April showers bring May flowers, what do May flowers bring?

<p>1. You bought a magazine for \$5 and four erasers. You spent a total of \$25. How much did each eraser cost?</p> <p>a. <math>5x + 4 = 25</math> (S)  b. <math>5 + 4x = 25</math> (P)  c. <math>25 + 4x = 5</math> (T)  d. <math>5 + 4x \leq 25</math> (R)</p>	<p>2. Imani spent half of her weekly allowance playing mini-golf. To earn more money her parents let her wash the car for \$4. What is her weekly allowance if she ended with \$12?</p> <p>a. <math>(x/2) + 4 = 12</math> (I)  b. <math>(x/2) + 4 &lt; 12</math> (A)  c. <math>(x/2) - 4 = 12</math> (E)  d. <math>2x + 4 = 12</math> (O)</p>
<p>3. Seventy-nine less than five times a number is at most 241. What is the maximum value of the number?</p> <p>a. <math>79 - 5x \geq 241</math> (S)  b. <math>5x - 79 \geq 241</math> (T)  c. <math>5x - 79 \leq 241</math> (L)  d. <math>79 - 5x \leq 241</math> (C)</p>	<p>4. Six more than twice a number is no more than -82. What could be the value of the number?</p> <p>a. <math>2x + 6 \leq -82</math> (G)  b. <math>2x + 6 &lt; -82</math> (K)  c. <math>6 + 2x &gt; -82</math> (A)  d. <math>6 + 2x \geq -82</math> (O)</p>
<p>5. How old am I if 400 reduced by 2 times my age is 244?</p> <p>a. <math>(400/2x) = 244</math> (I)  b. <math>400 - (x/2) = 244</math> (L)  c. <math>2x - 400 = 244</math> (P)  d. <math>400 - 2x = 244</math> (R)</p>	<p>6. A certain cell phone company has a monthly base charge of \$14.99 plus five cents per minute used. Dwaine's monthly budget for cell phone expenses is \$62.75. How many minutes can he use without exceeding his budget?</p> <p>a. <math>14.99 + 0.5x \geq 62.75</math> (A)  b. <math>14.99 + 0.5x \leq 62.75</math> (U)  c. <math>14.99 + 0.05x \geq 62.75</math> (O)  d. <math>14.99 + 0.05x \leq 62.75</math> (I)</p>
<p>7. Jill sold half of her comic books and then bought sixteen more. She now has 36. With how many did she begin?</p> <p>a. <math>2x + 16 = 36</math> (Q)  b. <math>(x/2) + 16 = 36</math> (M)  c. <math>36 + (x/2) = 16</math> (Z)  d. <math>(x+16)/2 = 36</math> (T)</p>	<p>8. The smaller number is no more than 10 less than four-thirds the value of the bigger number. If the smaller number is 200, what could be the value of the bigger number?</p> <p>a. <math>200 \leq \frac{4}{3}x - 10</math> (S)  b. <math>200 \geq \frac{4}{3}x - 10</math> (E)  c. <math>200 \leq 10 - \frac{4}{3}x</math> (P)</p>

1

2

3

4

5

6

7

8

# Math Talks

5.1 What are different methods to help us write an equation to solve for an unknown in a scenario?

5.2 Give real life examples of when you would use less than AND less than or equal to.

5.3 How can we know if we should write an equation or inequality for a given scenario?

5.4 What makes us know we will need to write a two-step equation? Key words?

5.5 How can we determine which inequality sign we should use for a given scenario? What are some keywords to look for?

5.6 How can we determine if we should write an inequality or an equation from a given scenario? What are some keywords to look for?

## Workbook Reflection

Answer the question as completely as possible, using evidence from what we have learned this unit. Justify your response with examples and evidence from throughout the packet.

**How can we use equations and inequalities in our real life? Give an example!**

**Choose one of the following concepts and describe it. Include visuals to support your answer.**

- *Difference between inequality signs (their meanings)*
- *Difference between writing an inequality vs writing an equation*
- *The use of key words throughout this unit...with examples!*

**What lesson most challenged your thinking?**

**What would you have done differently?**

**Flip through your packet, and look to see if you shaded the box every day for turning in your homework. How many days did you shade it in?**

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
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**If you didn't finish it each night, consider why →**

**Would you like to come in during lunch or recess for support?**