## Unit 9

### Two-Step Equations and Inequalities

Simplify Expressions with Rational Numbers

Factor Expressions

Write and Solve Multi-Step Equations

Write, Solve, and Graph Multi-Step Inequalities

---

### IXL Tracking Log

<table>
<thead>
<tr>
<th>IXL Skill</th>
<th>Your Score (90 or above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z.11</td>
<td></td>
</tr>
<tr>
<td>R.11</td>
<td></td>
</tr>
<tr>
<td>R.14</td>
<td></td>
</tr>
<tr>
<td>R.15</td>
<td></td>
</tr>
<tr>
<td>R.17</td>
<td></td>
</tr>
<tr>
<td>S.6</td>
<td></td>
</tr>
<tr>
<td>S.8</td>
<td></td>
</tr>
<tr>
<td>S.9</td>
<td></td>
</tr>
<tr>
<td>T.4</td>
<td></td>
</tr>
<tr>
<td>T.5</td>
<td></td>
</tr>
<tr>
<td>T.6</td>
<td></td>
</tr>
<tr>
<td>T.7</td>
<td></td>
</tr>
</tbody>
</table>

**7th Grade IXL Standards:**

R.11 (Multiply using the distributive property)

R.14 (Add and subtract linear expressions)

R.15 (Add and subtract like terms with exponents)

R.17 (Identify equivalent linear expressions I)

S.6 (Solve two-step equations)

S.8 (Solve equations involving like terms)

S.9 (Solve equations: complete the solution)

T.4 (Solve one-step inequalities)

T.5 (Graph solutions to one-step inequalities)

T.6 (Solve two-step inequalities)

T.7 (Graph solutions to two-step inequalities)

**Name:** ________________________________

**Math Teacher:** ____________________________
<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>What does it mean? Definition</th>
<th>What does it look like? Picture/Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
<td>A symbol, usually a letter, that represents a number</td>
<td></td>
</tr>
<tr>
<td><strong>Coefficient</strong></td>
<td>A number that multiplies a variable</td>
<td></td>
</tr>
<tr>
<td><strong>Exponent</strong></td>
<td>Tells how many times to multiply the base number by itself</td>
<td></td>
</tr>
<tr>
<td><strong>Like terms</strong></td>
<td>Terms that have the same variable and/or exponent</td>
<td></td>
</tr>
<tr>
<td><strong>Expression</strong></td>
<td>A group of variable(s), operation(s), and/or number(s) that represents a quantity. Expressions do not contain = signs.</td>
<td></td>
</tr>
<tr>
<td><strong>Simplify (an expression)</strong></td>
<td>To write an expression in simplest form by removing parentheses and unnecessary terms. This is typically done by using distributive property and combining like terms</td>
<td></td>
</tr>
<tr>
<td><strong>Commutative Property</strong></td>
<td>This states that numbers may be added or multiplied together in any order, and the solution will always be the same</td>
<td></td>
</tr>
<tr>
<td><strong>Associative property</strong></td>
<td>This states that no matter how numbers are grouped, their sum or product will always be the same</td>
<td></td>
</tr>
<tr>
<td><strong>Distributive property</strong></td>
<td>Multiplying a number is the same as multiplying its addends by the number, then adding the products</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>What does it mean? Definition</th>
<th>What does it look like? Picture/Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equation</strong></td>
<td>A mathematical sentence containing an equal sign, showing that two expressions are equivalent</td>
<td></td>
</tr>
<tr>
<td><strong>Inverse operations</strong></td>
<td>Opposite operations that “undo” each other</td>
<td></td>
</tr>
<tr>
<td><strong>Inequality</strong></td>
<td>A statement showing that two expressions are NOT equal, using one of the following signs: &gt;, &lt;, ≥, ≤, or ≠</td>
<td></td>
</tr>
<tr>
<td><strong>Less than</strong></td>
<td>&lt;</td>
<td></td>
</tr>
<tr>
<td><strong>Less than or equal to</strong></td>
<td>≤</td>
<td></td>
</tr>
<tr>
<td><strong>Greater than</strong></td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Greater than or equal to</strong></td>
<td>≥</td>
<td></td>
</tr>
<tr>
<td><strong>Not equal to</strong></td>
<td>Two quantities are NOT equal, ≠</td>
<td></td>
</tr>
<tr>
<td><strong>Solution set</strong></td>
<td>A set of answers to an inequality</td>
<td></td>
</tr>
</tbody>
</table>
Unit 9 Pre-requisite Skills Review

Simplifying Expressions:
1) Circle all of the following expressions that are equivalent to 24y + 88. SHOW ALL WORK BELOW:
   a. 4(6y + 22)  
   b. 8(3y + 88)  
   c. 4(6y + 88)  
   d. 24(y + 88)  
   e. 2(44 + 12y)  
   f. 5y + 18 + 88  
   g. 112y  
   h. 88 + 24y

2) Simplify 5x^2 + 15x^2 + 4y^2 - 5x^2
3) Simplify 7xy^2 + 13x^2y - x^2y + 23x^2y

4) Simplify 15(x^2 + 4x) + 3(2x^2 + 5x)
5) Simplify 13(2xy^2 + 3y) + (2xy^2 + 5xy^2)

Solving Equations:
SHOW ALL WORK!!
18) x - 9 = -11
19) y + 4.5 = -13
20) -1.2m = -6

   + 9  
   + 9

   x = -2

   -2 - 9 = -11

    -2 + (-9) = -11

21) \( \frac{5}{3} \) = -25
22) n - (-2.3) = 2
23) b + (-3) = \( \frac{-1}{4} \)

Rational Numbers Review
5) Fill in the table with at least 3 examples and non-examples of each:

<table>
<thead>
<tr>
<th>Examples</th>
<th>Non-examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Numbers</td>
<td></td>
</tr>
<tr>
<td>Integers</td>
<td></td>
</tr>
<tr>
<td>Rational Numbers</td>
<td></td>
</tr>
</tbody>
</table>

7) 8 + (-9) + 14
8) -41 - (-8)
9) -5 + 6 + 2
10) -18 + 4

11) -19 + 11 + 8
12) 52 - 98
13) 2.5 + (-4)
14) \( \frac{-33}{11} \)

Two-Step Equations:
Using any method (substitution or inverse operations), determine the value of each variable:

24) -4x + 5 = 17
   a. -3  
   b. 3  
   c. -5  
   d. 12

25) 3b - 8 = -2
   a. 24  
   b. -2  
   c. 2  
   d. -3.3

26) 2x - 6 = 14
   a. 4  
   b. -4  
   c. 10  
   d. 20

Inequalities: Graph each inequality on a number line, and list 3 possible solutions AND 3 non-solutions

<table>
<thead>
<tr>
<th></th>
<th>Graph on a Number Line:</th>
<th>Possible Solutions</th>
<th>Non-solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>27) ( x &gt; -11 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28) ( z \leq \frac{1}{2} )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**LET’S DISTRIBUTE!**  (Distributive Property Practice)

Draw a picture to represent the following problems. Then, write a problem using the distributive property. Finally, evaluate the problem.

1) There are 3 girls. Each girl has 1 blue bow and 4 pink bows. How many bows do they have in all?
   - Picture: 
   - Problem: 

2) Ethan has 2 dogs. Each one has 3 bones and 2 leashes. How many bones do they have in all, and how many leashes do they have in all?
   - Picture: 
   - Problem: 

Apply the distributive property to write the following in simplest terms:

**HINT: Be careful when distributing negatives!!**

3) 5(2 + 8) \hspace{1cm} 4) 10(x + 2) \hspace{1cm} 5) 14(a - b)

6) 5(9 - 11) \hspace{1cm} 7) -12(x + 2) \hspace{1cm} 8) 9(x + 3)

**In math, like terms have the ______________________.**

Mark the like terms by color-coding or putting different shapes around them:

4xy² \hspace{1cm} 9 \hspace{1cm} 2y² \hspace{1cm} -5 \hspace{1cm} 4x \hspace{1cm} x \hspace{1cm} -2.5y²

Simplify the following expressions:

1) \(-4x + 5x\) \hspace{1cm} 4) \(1 + 5v + v - 6\)
2) \(11a + 11a\) \hspace{1cm} 3) \(4n + 4 + 1 + 3n\)
5) \(-2x - 8 - 7x + 2\) \hspace{1cm} 6) \(7v + 6v\)
7) \(-8x - 10x\) \hspace{1cm} 8) \(6 - 7n - 2n - 8\)
9) \(2k - k\) \hspace{1cm} 10) \(-p - 11 + 3\)
11) \(9n + 3n\) \hspace{1cm} 12) \(12x + 11 - 4\)
### Mathematical Properties

1. Identity Property of Addition: \( c + 0 = \) ____________
2. Identity Property of Multiplication: \( 22b \cdot 1 = \) ____________
3. Multiplicative Property of Zero: \( 40,286 \cdot 0 = \) ____________
4. Commutative Property of Addition: \( x + z = \) ____________
5. Commutative Property of Multiplication: \( k \cdot 6 = \) ____________
6. Associative Property of Addition: \( (1 + 3) + 9 = \) ____________
7. Associative Property of Multiplication: \( (w \cdot h) \cdot l = \) ____________

### Simplifying Practice:

Use Distributive Property.

13) \( 2(-7 - 8n) \)
14) \(-8(1 + 5n)\)
15) \( 8(r + 1) \)
16) \( 8(7x + 8) \)
17) \( 2(6n - 8) \)
18) \(-3(8 - b)\)
19) \(-5(8y - 2)\)
20) \(-2(x - 5)\)
21) \(-3a - 3\)
22) \(-2(7 - 2n)\)
23) \(-8(5 - 3x)\)
24) \(-7(6x - 3)\)

First, use Distributive Property, then Combine Like Terms to simplify each expression.

25) \(-n + 4(n + 1)\)
26) \(-3(1 - 3x) + 2x\)
27) \(-2(-3k + 4) - 7\)
28) \(-3p - (-8 + 4p)\)
29) \(-4 + 6(-4x + 3)\)
30) \(3n + 3(1 + 8n)\)
31) \(-2 + 5(4 + 3r)\)
32) \(-1 + 3(m + 4)\)
33) \(-(-n + 2) - 2n\)
34) \(-3(3 + 2x) - 7\)

Name the property demonstrated by each statement.

8. \( 9 \cdot 7 = 7 \cdot 9 \)
9. \( 2 \cdot (3 \cdot 4) = (2 \cdot 3) \cdot 4 \)
10. \( 37 \cdot 0 = 0 \)
11. \( 1 \cdot 87 = 87 \)
12. \( 14 + 6 = 6 + 14 \)
13. \( 3(6a) = (3 \cdot 6)a \)
14. \( 2b + 0 = 2b \)
15. \( 55 + 6 = 6 + 55 \)
16. \( 6 \cdot 7 = 7 \cdot 6 \)
17. \( (x + 3) + y = x + (3 + y) \)
18. \( 1 \cdot mp = mp \)
19. \( 9 + (5 + 35) = (9 + 5) + 35 \)
20. \( 6b + 0 = 6b \)
In the REAL world, people aren’t usually handed a set of equations, and told to “solve for x”. However, we are often faced with problems for which writing an equation can be helpful.

**Examples:**

<table>
<thead>
<tr>
<th><strong>The sum of x and -19</strong></th>
<th>x + (-19)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4 less than the product of 5 and y</strong></td>
<td>5y - 4</td>
</tr>
<tr>
<td><strong>Twice the difference of 12 and x is 14</strong></td>
<td>2(12 - x) = 14</td>
</tr>
<tr>
<td><strong>8 less than the quotient of m and -3 equals -9</strong></td>
<td>( \frac{m}{-3} - 8 = -9 )</td>
</tr>
</tbody>
</table>

**More REAL-World Examples:**

| Allison makes n dollars per hour, and her boss gave her a raise of $2 more per hour. Write an expression how much she will make if she works for 40 hours. | n + 2 \rightarrow her hourly rate with the raise |
| 40(n + 2) \rightarrow how much she makes in 40 hrs. |
| Davis is donating 2/5 of his savings to his school. If he donates $77.60, how much did he have in savings? | \( \frac{2}{5} \times x = 77.60 \) |
| Also, consider using properties of rational numbers, (fractions & decimals) | 0.4x = $77.60 |

**Translating Words to Math PRACTICE!**

Translate each statement below to an expression or equation.

<table>
<thead>
<tr>
<th><strong>Words</strong>…</th>
<th><strong>Math!</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) the sum of m and -18</td>
<td>m + (-18)</td>
</tr>
<tr>
<td>2) x increased by -25</td>
<td>x + (-25)</td>
</tr>
<tr>
<td>3) twice the difference of x and -3</td>
<td>2(x - (-3))</td>
</tr>
<tr>
<td>4) one-tenth of x is -12</td>
<td>( \frac{1}{10} \times x = -12 )</td>
</tr>
<tr>
<td>5) 8 less than x divided by -2 equals 4</td>
<td>( \frac{x}{-2} - 8 = 4 )</td>
</tr>
<tr>
<td>6) 25% of x is 55</td>
<td>0.25x = 55</td>
</tr>
</tbody>
</table>

**Let’s also look at other ways of expressing math:**

Cobb County adds a 6% tax to most items sold. If an item costs x dollars, what will the price be after tax?

\[ x + 0.06x = 1.06x \]

So, an “increase of 6%” is the SAME as multiplying by 1.06

<table>
<thead>
<tr>
<th>original price</th>
<th>tax</th>
<th>total</th>
</tr>
</thead>
</table>

**You Try!**

7) Your bill at Red Lobster is y dollars. You decide to give server a 20% tip. Write an expression for the total cost.

8) There’s a 30%-off sale on Falcons jerseys! Write an expression for the total cost.

9) Halloween candy, c, goes on a 75%-off sale in November. Write an expression for the cost.
Solving Two-Step Equations

Two-step equations are like **having a party at your house!**
YOU are the VARIABLE
The operation FARDEST from you will leave first, so undo that one FIRST.
The operation CLOSEST to you is your BFF and will stay the LONGEST, so
you undo that operation LAST.
Eventually everyone goes home, and YOU, the VARIABLE, are left
alone and ISOLATED!

**EXAMPLE 1:**

\[9y - 5 = 8\] → This equation has multiplication and subtraction

\[9y = 13\] → Use the inverse of the farthest operation

\[y = 1\frac{4}{9}\] → The variable equals \(1\frac{4}{9}\)

(Remember to ALWAYS check your answer with substitution!)

**EXAMPLE 2:**
\[\frac{x - 3}{4} = -2\]

\[4 \cdot \left(\frac{x - 3}{4}\right) = (-2) \cdot 4\]

\[x - 3 = -8\]

\[x - 3 + 3 = -8 + 3\]

\[x = -5\]

**EXAMPLE 3:**
\[-3x + 4 = 16\]

\[-3x = 12\]

\[-\frac{3x}{-3} = \frac{12}{-3}\]

\[x = -4\]

**Practice with Solving Two-Step Equations**

First, let’s make sure we know which step comes FIRST (that “just a friend” operation that’s farthest from the variable), and which step comes LAST (your BFF operation that you will save for last).

<table>
<thead>
<tr>
<th>Equation</th>
<th>First step (Inverse of farthest operation)</th>
<th>Last step (Inverse of BFF operation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{x + 8}{-2} = -6)</td>
<td>Multiply both sides by -2</td>
<td>Subtract 8 from both sides</td>
</tr>
<tr>
<td>(-3x + 14 = 44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4x - (-3) = 15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\frac{x + 5}{3} = 10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now, YOU practice. **SHOW ALL STEPS.**

1) \(3y - 10 = 8\)  
2) \(-7a + 3 = -4\)

3) \(\frac{x - 12}{-5} = -11\)  
4) \(16x - (-11) = 43\)

5) \(\frac{1}{2}x + 18 = 24\)  
6) \(\frac{5x}{12} = 10\)
**Problem Solving With Equations**

Gino has $48 to spend at the state fair. Admission is $6, and tickets cost $1.50 apiece. How many tickets can he purchase?

We can solve this conundrum with the equation,

\[ 1.50x + 6 = 48 \]

\(x\) is the number of tickets, \$1.50 is the coefficient, since we must multiply the number of tickets, \(x\), by their cost $1.50.

The total $ Gino can spend is $48,

Think it Through! If Gino has $48 to spend, he'll first spend $6 to get in. Subtract that, and he has $42 left to spend.

\[ 1.50x + 6 = 48 \]
\[ - 6 = -6 \]
\[ 1.50x = 42 \]

Tickets cost $1.50 each. Gino has $42 left. Divide 42 by 1.50.

\[ 1.50x = 42 \]
\[ 1.50 \quad 1.5 \] So, Gino can buy 28 tickets at the fair!

\[ x = 28 \]

Alexandra's rectangular room has a perimeter of 54 feet. She knows that the length of the room is 15 feet. What is the width?

Perimeter = \(2(l + w)\)

\[ 54 = 2(15 + w) \]
\[ 27 = 15 + w \]
\[ -15 = -15 \]
\[ \frac{12}{w} \] The width of her room is 12 feet!

**You Try!**

Write an Equation for each problem below. Then, solve!

1) Rory made $450 selling cookies. She made $30 from donations. The rest of the money was made from selling cookies at $3 per box. How many boxes of cookies did she sell?

2) Emily is in Athens for the weekend, and she has budgeted $100 to spend on souvenirs for herself and 8 friends. If she spends $36 on her souvenir, how much does she have left to spend on each friend (if all 8 friends get the same item)?

3) Ben is putting down carpet in 5 rectangular classrooms. The total area of all the carpet is 400 square yards. If the length of each classroom is 10 yards, what is the width?

4) A father made $30 helping his neighbor, and he added that money to money he already had in his wallet. Then, he split that money evenly amongst his 3 kids. If each child received $35, how much money did the father start out with?
Solving One-Step Inequalities with Addition & Subtraction

Solve for the variable just like you would do with an equation!

1) \( x - 4 < -1 \)
2) \( m + (-8) \geq 10 \)
3) \( z - (-1) \geq 1 \)
4) \( k + 3 > 0 \)

Now, YOU Try!

Solve the inequality, then graph the solution set.

---

Solving One-Step Inequalities with Multiplication & Division

Solve for the variable just like you would do with an equation!

BUT… IF YOU **MULTIPLY OR DIVIDE BY A NEGATIVE NUMBER**, YOU MUST **REVERSE** THE INEQUALITY SYMBOL!

1) \(-3x \leq 12\)
2) \(\frac{y}{6} > -36\)
3) \(\frac{n}{9} < -3\)
4) \(12x \geq 72\)

Now, YOU Try!

Solve the inequality, then graph the solution set.
Writing & Graphing Inequalities

First, make sure you know the symbols and their key words!

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Key Words</th>
<th>On the Number Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>Less than, fewer than, below</td>
<td>Open circle, O</td>
</tr>
<tr>
<td>≤</td>
<td>Less than or equal to</td>
<td>No more than, at most</td>
<td>Closed circle, ●</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>Greater than, more than, above</td>
<td>Open circle, O</td>
</tr>
<tr>
<td>≥</td>
<td>Greater than or equal to</td>
<td>At least, no less than</td>
<td>Closed circle, ●</td>
</tr>
<tr>
<td>≠</td>
<td>Not equal to</td>
<td>Not equal to</td>
<td>Open circle, O</td>
</tr>
</tbody>
</table>

**TIP:** Keep the variable on the LEFT! Then, the arrow at the end of your number line looks like your inequality symbol.

Examples:

1. Flo the Salesgirl is paid $200 per week, plus $10 per sale. She wants to make at least $480 this week. Write an inequality for the number of sales Flo needs to make. Solve and graph.

   \[
   200 + 10s \geq 480
   \]
   \[
   \frac{200}{100} \geq \frac{480}{100}
   \]
   \[
   10s \geq 280
   \]
   \[
   \frac{10s}{10} \geq \frac{280}{10}
   \]
   → Flo needs AT LEAST 28 sales! This means she can make 28 OR MORE sales to make at least $480.

   ![Graph showing inequality solution]

2. Sam lost $30. Then, he split his remaining cash evenly into two savings accounts. If he put fewer than $12 into those accounts, how much money did he begin with?

   \[
   \frac{m - 30}{2} < 12
   \]
   \[
   2 \left( \frac{m - 30}{2} \right) < 2 \times 12
   \]
   \[
   m - 30 < 24
   \]
   \[
   \frac{m - 30}{2} < 12\times2
   \]
   \[
   m - 30 < 24
   \]
   \[
   \pm 24 \pm 30
   \]
   This tells us that Sam started with less than $54.

   ![Money calculation diagram]

You Try! Write an inequality for each situation, then solve. Lastly, graph the solution set on a number line.

1. Penn wants to save at least $160. He has $16 already saved. If he earns $24 per week, how many weeks will it take him to meet his goal?

2. There are 100 second graders. Ten of them will not be going on a field trip. If the teachers want the kids to be in groups of no more than 8, how many groups should there be?

   ![Field trip planning diagram]
Solving Two-Step Inequalities
Practice

Solve and graph each inequality below!

1) $10x - 3 < 37$

2) $-5x + 18 \geq 3$

3) $\frac{a}{-2} + 4 > -2$

4) $\frac{b}{4.5} - 2 < 2$

5) $-9(x + 3) > -27$

6) $40 \leq \frac{1}{2}(c + 70)$

SHOW ALL STEPS HERE:

1)  

2)  

3)  

4)  

5)  

6)  

Math 6/7 Unit 9 Post-Test REVIEW

1. Explain the difference between the solutions to \(2x + 50 = 100\) and \(2x + 50 > 100\) ________________

______________________________________________________________________________________

______________________________________________________________________________________

2. Simplify: \(-3(5a + 2a) + 5(3a + a)\) ________________

3. Simplify: \(70 + 3(5x - 2) + (-15x)\) ________________

4. Solve: \(2x + 10 = 80\)  

5. Solve: \(-6x + 5 = -19\)

6. Solve and graph: \(\frac{x}{5} + 25 \geq 27\)

7. Solve and graph: \(-4x - 5 < 55\)
Use the diagram at the right for questions 8 and 9.

8. Determine the simplified perimeter of the figure. ________________

9. Determine the simplified area of the figure. ________________

10. “Eight less than the product of a number and three is twenty-two.”
    a. Write the statement below as an algebraic equation: __________________________
    b. What is that number? (Show steps)

11. Six more than twenty times a number is 206.
    a. Write an equation to represent this problem: _________________________________
    b. What is that number? (Show steps)

12. Which equation and solution represent this situation?
    Abbie and Ben ride their bikes each day for exercise. Ben rides two miles more than Abbie each day. If together they ride 9 miles, how many miles does Ben ride each day?

   A. \(2(x + x) = 9\), Ben rides 3.5 miles
   B. \(2x + x = 9\), Ben rides 5.5 miles
   C. \(x^2 + x = 9\), Ben rides 6 miles
   D. \(x + (x + 2) = 9\), Ben rides 5.5 miles
13. James has spent $20 of his $35 video store gift card. He plans on using the remaining balance to rent video games. If the games cost $2.50 each to rent, how many games can he rent? Write an equation AND solve.

14. Which of the following shows the solution to \(-2x + 3 < 21\)?

A. \[\begin{array}{cccc}
-10 & -9 & -8 & -7 \\
\end{array}\]  
B. \[\begin{array}{cccc}
-10 & -9 & -8 & -7 \\
\end{array}\]  
C. \[\begin{array}{cccc}
-13 & -12 & -11 & -10 \\
\end{array}\]  
D. \[\begin{array}{cccc}
-13 & -12 & -11 & -10 \\
\end{array}\]

15. Stephen owns a bicycle rental stand at the beach. He uses the equation \[c = 3.50h + 5\] to determine \(c\), how much he will charge to rent a bicycle for \(h\) hours. Which of the following is a reasonable amount someone would pay to rent a bicycle from morning to evening on one day?

A. $3.50  
B. $5.00  
C. $15.50  
D. $47.00

16. A rectangle has 4 equivalent angles. Find the value of \(x\) in the diagram below.

17. Elijah is saving for a summer vacation in Florida that costs $550. He has $250 saved and hopes to lifeguard at $20 per hour to earn the rest of the money. Which inequality below describes the number of hours, \(h\), he must lifeguard to have enough money for the trip?

A. \(250 + 20h \leq 550\)  
B. \(250 + 20h \geq 550\)  
C. \(250 + 20 + h \leq 550\)  
D. \(20h \leq 550\)

18. Which property is demonstrated by the equation shown? \[4 \times (3 \times 18) = (3 \times 18) \times 4\]

A. distributive property  
B. commutative property  
C. associative property

19. Which expression is NOT equivalent to \(-8x - 24\)?

A. \(-10x + 2x + 10 + (-34)\)  
B. \(4(-2x - 6)\)  
C. \(-8(x + 3)\)  
D. \(-8(x - 3)\)