

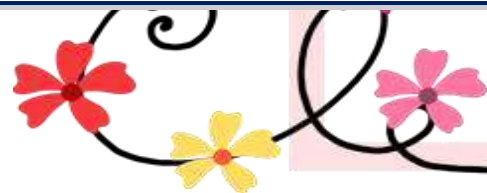
**EOT2 Coverage 2023-2024**

# **Mathematics Booklet Grade 7**



**Name:**

Teacher: Oumama Alfeilali



## Simplify Algebraic Expressions



Simplify each expression. (Examples 2 and 3)

3.  $-y + 9z - 16y - 25z + 4$

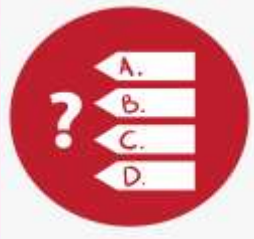
4.  $8z + x - 5 - 9z + 2$

5.  $5c - 3d - 12c + d - 6$

6.  $-\frac{3}{4}x - \frac{1}{3} + \frac{7}{8}x - \frac{1}{2}$

7.  $\frac{1}{4} + \frac{9}{10}y - \frac{3}{5}y + \frac{7}{8}$

8.  $-\frac{1}{2}a + \frac{2}{5} + \frac{5}{6}a - \frac{1}{10}$



## Simplify Algebraic Expressions

Use the Distributive Property to expand each expression. (Examples 4–6)

9.  $2(-3x + 5)$

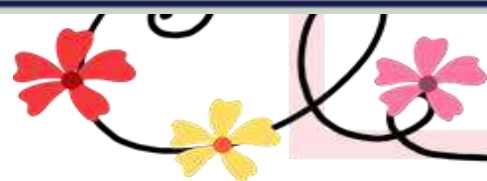
10.  $6(-4x + 3y)$

11.  $(3y - 2z)5$

12.  $(-2x - 7)4$

13.  $-7(x - 2)$

14.  $-3(8x - 4)$



## Add Linear Expressions



d. (Examples 1 and 2)

1.  $(8x + 9) + (-6x - 2)$

2.  $(5x + 4) + (-8x - 2)$

3.  $(-7x + 1) + (4x - 5)$

4.  $(-3x - 9) + (4x + 8)$

5.  $(-5x + 4) + (-9x - 3)$

6.  $(-2x + 10) + (-8x - 1)$



## Add Linear Expressions



7.  $\left(\frac{1}{4}x - 3\right) + \left(\frac{3}{16}x + 5\right)$

8.  $\left(\frac{1}{2}x - 3\right) + \left(\frac{1}{6}x + 1\right)$

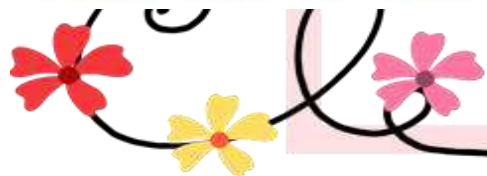
9.  $\left(4x + \frac{3}{4}\right) + \left(-3x - \frac{5}{12}\right)$

10.  $\left(-9x - \frac{4}{5}\right) + \left(2x + \frac{2}{3}\right)$

11.  $\left(\frac{1}{3}x - 3\right) + \left(-\frac{3}{4}x - 5\right)$

12.  $\left(-5x - \frac{2}{3}\right) + \left(-4x - \frac{1}{9}\right)$





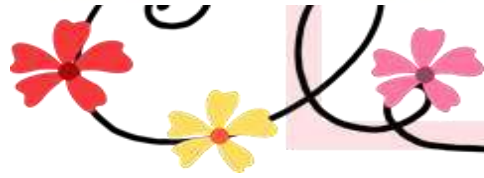
## Subtract Linear Expressions



- 13. Open Response** The table shows the scores of two teams in a trivia challenge at the end of the first half. How many more points did the Huskies score than the Bobcats?

Team	Points Scored
Bobcats	$2x - 7$
Huskies	$5x - 3$





## Subtract Linear Expressions



14. The table shows the sales of plain and Asiago cheese bagels at a bakery for  $h$  hours. After 6 hours, how much more will the bakery have made in sales of Asiago cheese bagels than the sales of plain bagels?

Bagel Sales		
Bagel	Cost (\$)	Number Sold After $h$ hours
Asiago Cheese	1.50	$12h + 7$
Plain	1.50	$7h - 4$

15. Derek owns a snack shop where he sells tins of buttered and caramel popcorn. The table shows the number of each type of popcorn sold over  $w$  weeks. After 12 weeks, how much more will he have made in sales of buttered popcorn than the sales of caramel popcorn?

Popcorn Sales		
Popcorn	Cost (\$)	Number Sold Over $w$ Weeks
Buttered	11	$8w + 9$
Caramel	11	$6w - 1$



## Factor Linear Expressions



Factor each expression. If the expression cannot be factored, write *cannot be factored*. (Examples 3–5)

7.  $5x + 35$

8.  $8x - 14$

9.  $3x + 11y$

10.  $32x - 15$

11.  $72x - 18xy$

12.  $45xy - 81y$

13.  $25x + 14y$

14.  $\frac{1}{3}x - \frac{1}{3}$

15.  $\frac{1}{2}x + \frac{1}{2}$





## Combine Operations with Linear Expressions

Simplify each expression. For Exercises 1–4 and 9–12, write your answer in factored form. (Examples 1–3)

1.  $3(x + 4) + 5x$

2.  $-4(x + 1) + 6x$

3.  $-5(2x - 6) + 25x$

4.  $2(-8x - 3) + 18x$

5.  $\frac{1}{6}x + \frac{3}{4}\left(\frac{1}{2}x - 4\right)$

6.  $\frac{2}{3}\left(6x - \frac{1}{6}\right) + 3x$



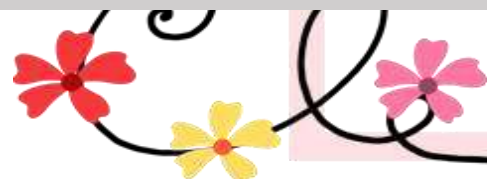
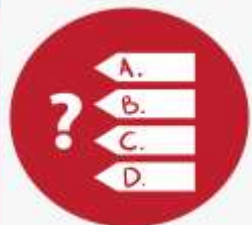
## Combine Operations with Linear Expressions

7.  $\frac{5}{8}x + \frac{1}{2}\left(\frac{1}{4}x + 10\right)$

8.  $\frac{2}{5}\left(10x + \frac{3}{4}\right) - 2x$

9.  $\frac{3}{4}(24x + 28) - (4x - 1)$





## Write and Solve One-Step Equations



Solve each equation. Check your solution. (Examples 1–7)

1.  $6 + y = -8$

2.  $-12 = 4 + c$

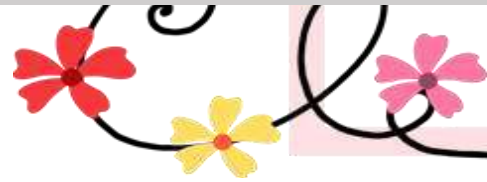
3.  $p - 11 = -5$

4.  $12 = z - 8$

13.  $c - 5.3 = -6.4$

14.  $-\frac{1}{3} = -\frac{5}{6} + w$

15.  $n + 7.1 = 8.6$



## Write and Solve One-Step Equations



7.  $\frac{d}{-9} = -6$

8.  $15 = \frac{z}{-8}$

9.  $2\frac{4}{5}x = -1\frac{1}{4}$

10.  $-6 = \frac{3}{5}y$

11.  $-6 = 0.2b$

12.  $-0.8n = 2.8$



Solve Two-Step Equations:  $px + q = r$ 

Solve each equation. Check your solution. (Examples 1–4)

1.  $5x + 2 = 17$

2.  $19 = 4x + 3$

3.  $-18 = 6 + 6x$

4.  $-3x - 9 = -15$

5.  $-6x - 7 = 17$

6.  $-5 = 3x - 14$

7.  $3.8 = 2x - 11.2$

8.  $5x - 3.3 = 7.2$

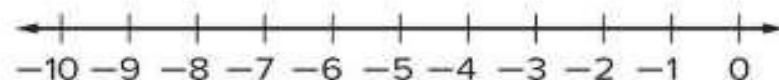
9.  $1.3x + 1.5 = 5.4$



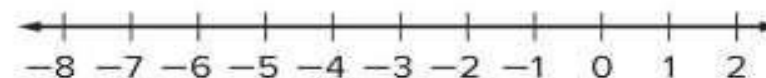
Solve Two-Step Equations:  $px + q = r$ 

Solve each inequality. Graph the solution set on a number line. (Examples 1-3)

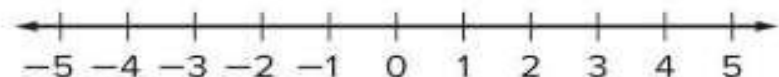
1.  $-3x - 3 > 12$



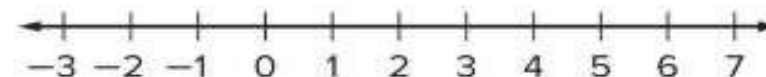
2.  $-4 \leq 4x + 8$



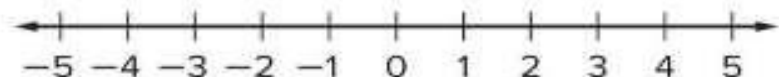
3.  $6.5x - 11.3 \leq 8.2$



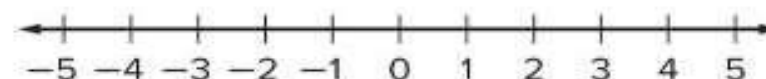
4.  $-2.45x + 3.2 < -6.6$

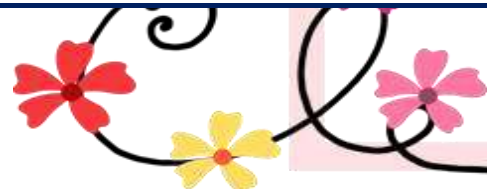


5.  $\frac{1}{2}x - \frac{1}{4} < \frac{5}{8}$



6.  $\frac{x}{10} + \frac{1}{4} \geq \frac{1}{5}$



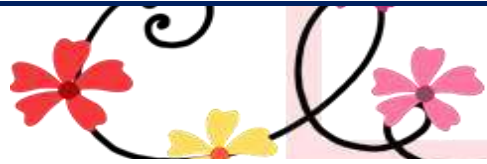


## Write and Solve Two-Step Equations:

$$px + q = r$$


**Write a two-step equation to represent each problem. Then solve the problem.**

1. Easton went to a concert with some of his friends. The tickets cost \$29.50 each, and they spent a total of \$15 on parking. The total amount spent was \$133. Determine how many people went to the concert. (Example 1)
2. Ishi bought a \$6.95 canvas and 8 tubes of paint. She spent a total of \$24.95 on the canvas and paints. Determine the cost of each tube of paint. (Example 1)
3. A taxi service charges \$1.50 plus \$0.60 per mile for a trip to the airport. The total charge is \$13.50. Determine how many miles it is to the airport. (Example 1)
4. At the market, Meyer buys a bunch of bananas for \$0.65 per pound and a frozen pizza for \$4.99. The total for his purchase was \$6.94, without tax. Determine how many pounds of bananas Meyer bought. (Example 1)



## Write and Solve Two-Step Equations:

$$px + q = r$$


5. A hot air balloon is at an altitude of  $100\frac{1}{5}$  yards. The balloon's altitude decreases by  $10\frac{4}{5}$  yards every minute. Determine the number of minutes it will take the balloon to reach an altitude of 57 yards. (Example 2)
6. The current temperature is  $48^{\circ}\text{F}$ . It is expected to drop  $1.5^{\circ}\text{F}$  each hour. Determine in how many hours the temperature will be  $36^{\circ}\text{F}$ . (Example 2)
7. Mariko and her friend spent \$24.50 on lunch. Their lunches cost the same amount, and they used a \$4 off coupon. Determine the cost of each lunch. (Example 2)



## Solve Two-Step Equations: $p(x + q) = r$

16. Write a real-world problem that could be represented by the equation  $6(x + 3.5) = 57$ . Then solve the equation.

17. **MP Find the Error** A student is solving  $-2(x - 5) = 12$ . Find the student's mistake and correct it.

$$-2(x - 5) = 12$$

$$-2x - 5 = 12$$

$$-2x - 5 + 5 = 12 + 5$$

$$-2x = 17$$

$$x = -8.5$$





## Solve Two-Step Equations: $p(x + q) = r$

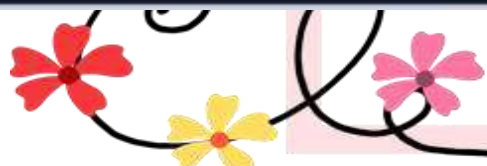
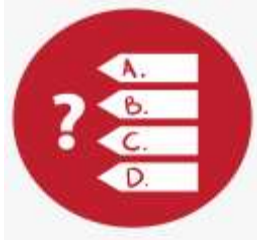
18. **MP Justify Conclusions** Suppose for some value of  $x$  the solution to the equation  $2.5(y - x) = 0$  is  $y = 6$ . What must be true about  $x$ ? Justify your conclusion.

19. **MP Persevere with Problems** Solve each equation.

a.  $2.5(x + 4) + x = 38$

b.  $6.1(x - 2) + x = 51.7$



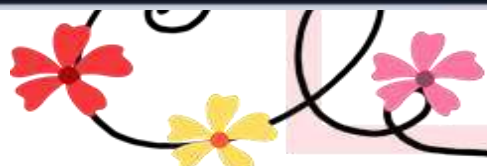


## Write and Solve Two-Step Equations:

$$p(x + q) = r$$

Write a two-step equation to represent each problem. Then solve the problem.

1. Ayana is making 6 scarves that each require  $1\frac{1}{4}$  yards of purple fabric and a certain amount of blue fabric. She will use 10 yards in all. Determine how many yards of blue fabric are needed for each scarf. (Example 1)
2. Sara is making 3 batches of chocolate chip cookies and 3 batches of oatmeal cookies. Each batch of chocolate chip cookies uses  $2\frac{1}{4}$  cups of flour. She will use  $12\frac{3}{4}$  cups of flour for all six batches. Determine how many cups of flour are needed for each batch of oatmeal cookies. (Example 1)
3. Pete is making 8 identical fruit baskets as gifts. Each basket contains some apples and 12 oranges. Pete uses a total of 168 pieces of fruit to make the baskets. Determine the number of apples that are in each basket. (Example 1)
4. A teacher is making 7 identical supply boxes for each table in her classroom. Each box contains some pencils and 11 pens. The teacher uses a total of 182 pencils and pens. Determine the number of pencils that are in each box. (Example 1)



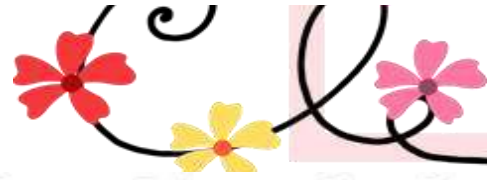
## Write and Solve Two-Step Equations:

$$p(x + q) = r$$

5. Javier bought 3 bags of balloons for a party. He used 8 balloons from each bag. Determine how many balloons were originally in each bag if there were 21 balloons left over. (Example 2)
6. Vera and her three sisters received the same amount of money to go to the school festival. Each girl spent \$12. Afterward, the girls had \$24 altogether. Determine the amount of money each girl received. (Example 2)
7. Zak buys 6 gallons of fruit punch. He has coupons for \$0.55 off the regular price of each gallon of fruit punch. After using the coupons, the total cost of the fruit punch is \$8.70. Determine the regular price of a gallon of fruit punch. (Example 2)
8. **Open Response** Mrs. James buys 5 hat and glove sets for charity. She has coupons for \$1.50 off the regular price of each set. After using the coupons, the total cost is \$48.75. Determine the regular price of a hat and glove set.

## Test Practice

Item	Cost (\$)
Hat and glove set	$p$
Scarf	9.99

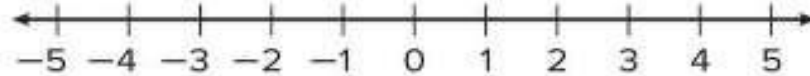


# Solve One-Step Addition and Subtraction inequalities

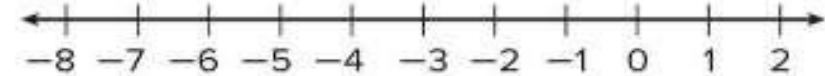


Solve each inequality. Graph the solution set on a number line. (Examples 1–3)

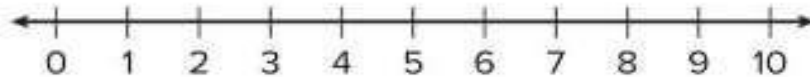
1.  $x + 5 < 7$



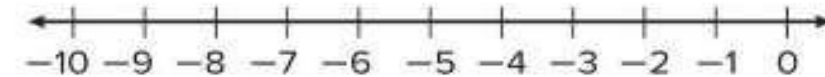
2.  $1 > x + 6$



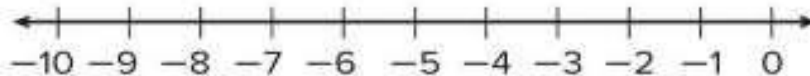
3.  $x + 8 \geq 14$



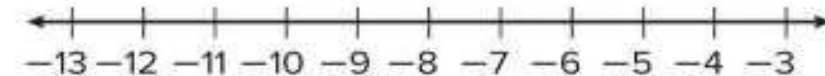
4.  $5 \leq x + 12$



5.  $x + 5.4 < -1.6$



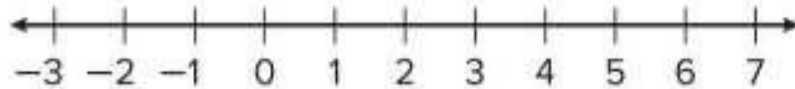
6.  $x + 7.5 > -2.5$



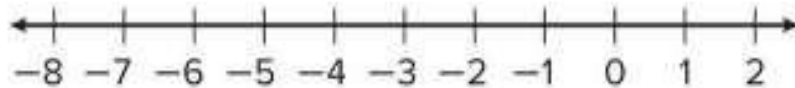


# Solve One-Step Addition and Subtraction inequalities

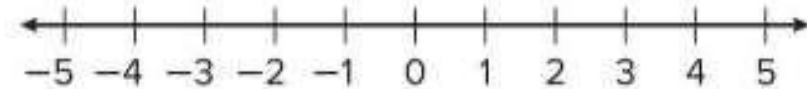
7.  $3 \leq \frac{1}{3} + x$



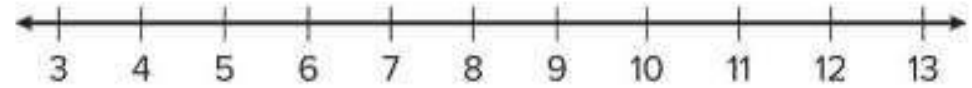
9.  $x - 3 \leq -8$



8.  $4 \geq x + \frac{3}{4}$



10.  $4 \leq x - 7$







## Write and Solve One-Step Addition and Subtraction inequalities



**Solve each problem by first writing an inequality.**

1. Gabe went to the amusement park with \$40 to spend. His ticket cost \$26.50. Determine how much Gabe can spend on souvenirs and snacks. Then interpret the solution.  
(Example 1)
2. Drew practices piano at least 45 minutes per day. He has already practiced 18.5 minutes today. Determine how much longer he will have to practice. Then interpret the solution. (Example 1)
3. A dolphin is swimming at a depth of  $-50$  feet and then ascends a certain number of feet to a depth above  $-35$  feet. Determine the number of feet the dolphin ascended. Then interpret the solution.  
(Example 1)
4. Elena's account balance with her parents is  $-\$5.50$ . She adds a certain amount of money to her balance by mowing the lawn. Elena now has an account balance less than \$20. Determine a possible amount she earned mowing the lawn. Then interpret the solution. (Example 1)






## Write and Solve One-Step Addition and Subtraction inequalities



5. Linda has two cats. The difference in weight of her Maine Coon and Siberian is at least 6 pounds. Linda's Siberian has a weight of  $8\frac{3}{4}$  pounds. Determine the possible weight of the Maine Coon. Then interpret the solution. (Example 2)
6. The Hendersons have a sedan and a minivan. The difference in mileage of the two vehicles is greater than 4,500 miles. The minivan has 12,755.25 miles. Determine the possible number of miles on the sedan. Then interpret the solution. (Example 2)

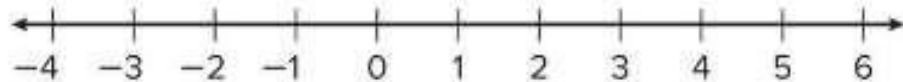


## Solve One-Step Multiplication and Division Inequalities with Positive Coefficients

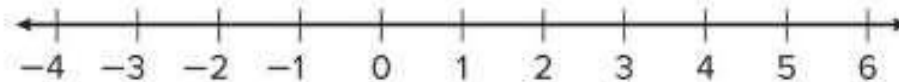


Solve each inequality. Graph the solution set on a number line. (Examples 1 and 2)

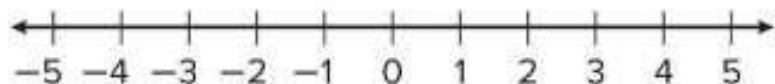
1.  $3x > 12$



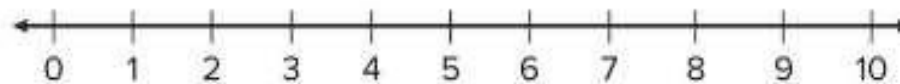
2.  $60 \geq 12x$



3.  $-14 \geq 7x$



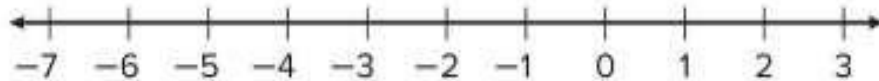
4.  $2 \leq 0.25x$



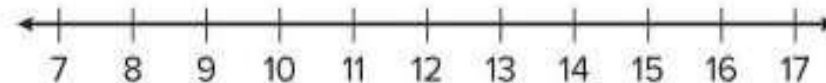
## Solve One-Step Multiplication and Division Inequalities with Positive Coefficients



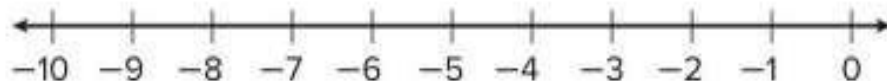
5.  $1.1x < -4.4$



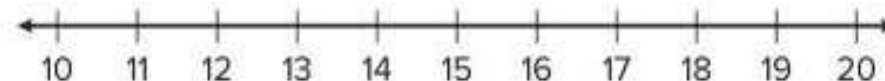
6.  $\frac{x}{6} \geq 2$



7.  $\frac{x}{2} > -4$



8.  $\frac{x}{3} < 5$

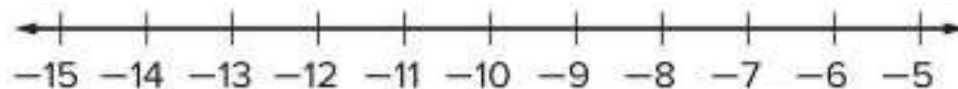


## Solve One-Step Multiplication and Division Inequalities with Negative Coefficients

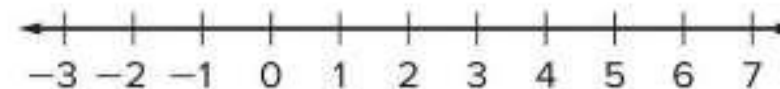


Solve each inequality. Graph the solution set on a number line. (Examples 1 and 2)

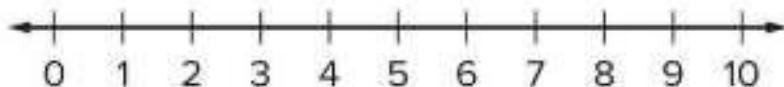
1.  $-6x > 66$



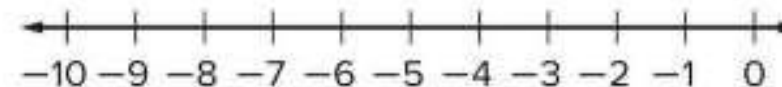
2.  $-12 \leq -3x$



3.  $-4x \geq -36$



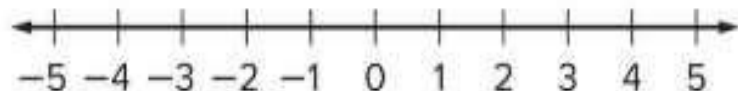
4.  $3 > -0.4x$



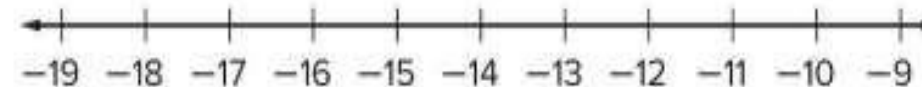
## Solve One-Step Multiplication and Division Inequalities with Negative Coefficients



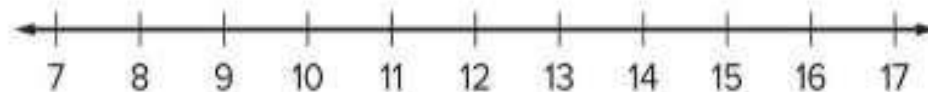
5.  $-2.2x \leq -6.6$



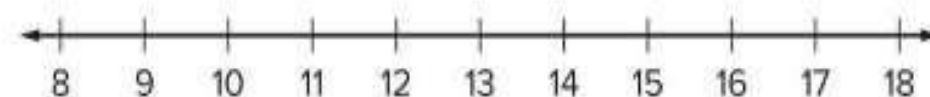
6.  $\frac{x}{-8} > 2$



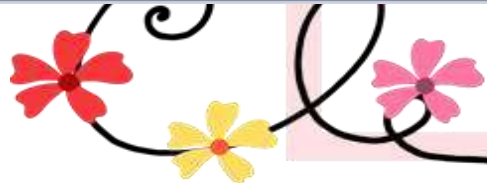
7.  $\frac{x}{-5} \geq -3$



8.  $\frac{x}{-2} < -6$





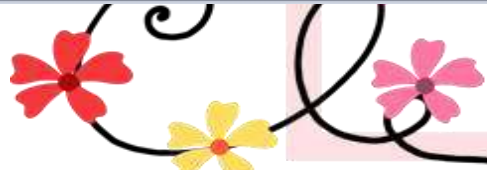


## Write and Solve One-Step Multiplication and Division Inequalities



**Solve each problem by first writing an inequality.**

1. Hermes earns \$6 an hour for babysitting. He wants to earn at least \$168 for a new video game system. Determine the number of hours he must babysit to earn enough money for the video game system. Then interpret the solution. (Example 1)
2. Becky wants to buy some fish for her aquarium. She has \$20 to spend and the fish cost \$2.50 each. Determine how many fish Becky can afford. Then interpret the solution. (Example 1)
3. Sadie wants to make several batches of rolls. She has 13 tablespoons of yeast left in the jar and each batch of rolls takes  $3\frac{1}{4}$  tablespoons. Determine the number of batches of rolls Sadie can make. Then interpret the solution. (Example 1)
4. Trini needs more than 51 cubic feet of soil to fill her raised garden. Each bag of soil contains 1.5 cubic feet. Determine how many bags of soil Trini needs. Then interpret the solution. (Example 1)



## Write and Solve One-Step Multiplication and Division Inequalities



5. A teacher is making tutus for the school play. She wants to make at least 24 tutus and needs 1.25 yards of tulle for each tutu. Determine the amount of tulle she needs to buy. Then interpret the solution. (Example 2)

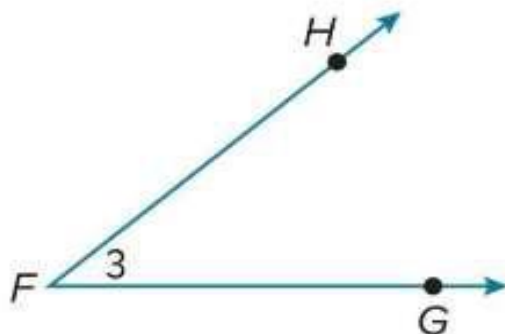
6. Paul is making picture frames. He wants to make at least 8 picture frames and needs 24.5 inches of materials for each frame. Determine how much of the materials Paul should buy. Then interpret the solution. (Example 2)

7. Chase is making bookmarks. He wants to make no more than 12 bookmarks and needs 4.25 inches of fabric for each bookmark. Determine the amount of fabric he needs to buy. Then interpret the solution. (Example 2)

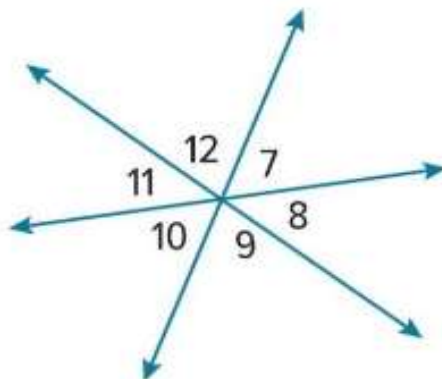
## Vertical and Adjacent Angles



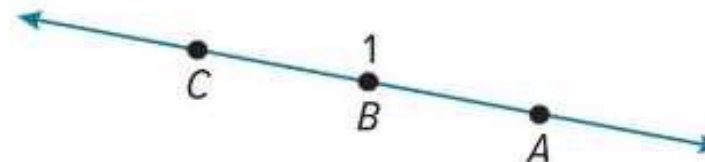
1. Name the angle in four ways. (Example 1)



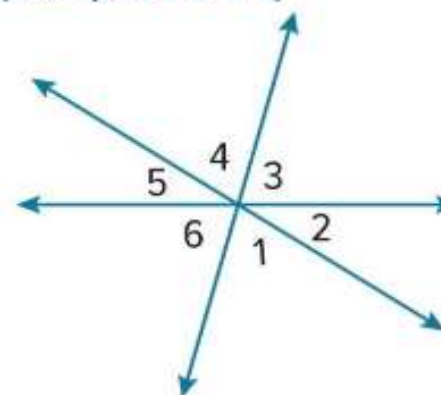
3. Refer to the diagram below. Identify three pairs of vertical angles. Name all the angles that are adjacent to  $\angle 10$ . (Examples 2 and 4)



2. Name the angle in four ways. (Example 1)



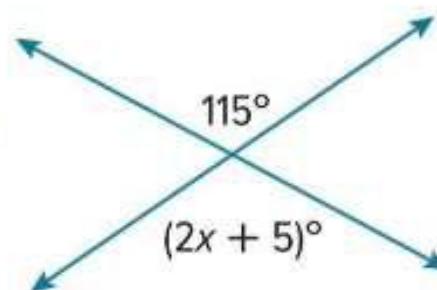
4. Identify three pairs of vertical angles. Name all the angles that are adjacent to  $\angle 3$ . (Examples 2 and 4)



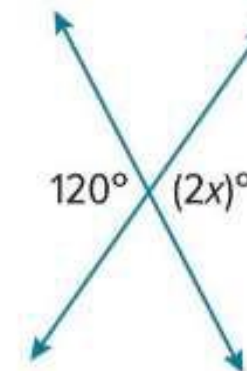


## Vertical and Adjacent Angles

5. Write and solve an equation to find the value of  $x$ . (Example 3)

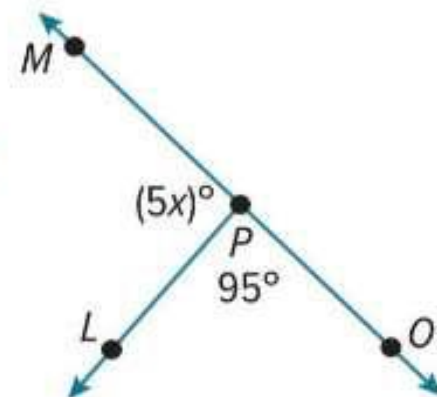


6. Write and solve an equation to find the value of  $x$ . (Example 3)



Test Practice

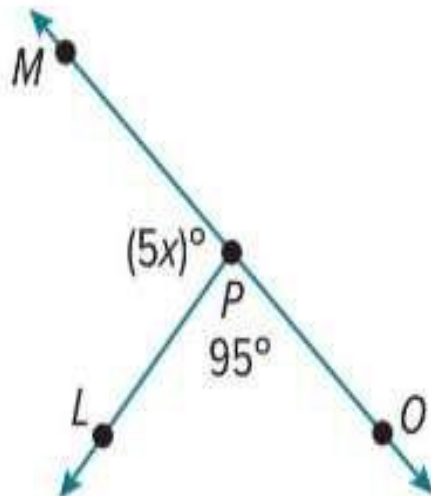
7. Write and solve an equation to find the value of  $x$ . (Example 5)



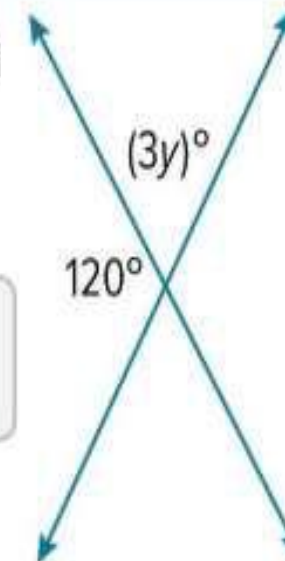


## Vertical and Adjacent Angles

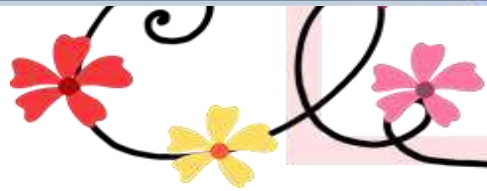
7. Write and solve an equation to find the value of  $x$ . (Example 5)



8. **Open Response** Write and solve an equation to find the value of  $y$ .



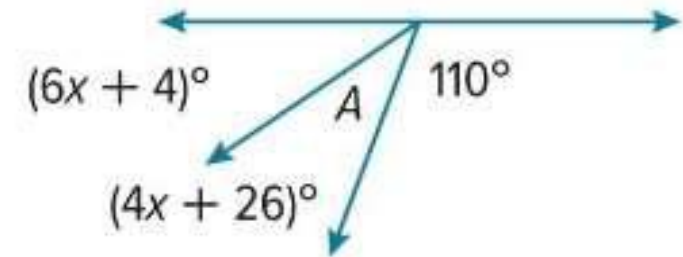




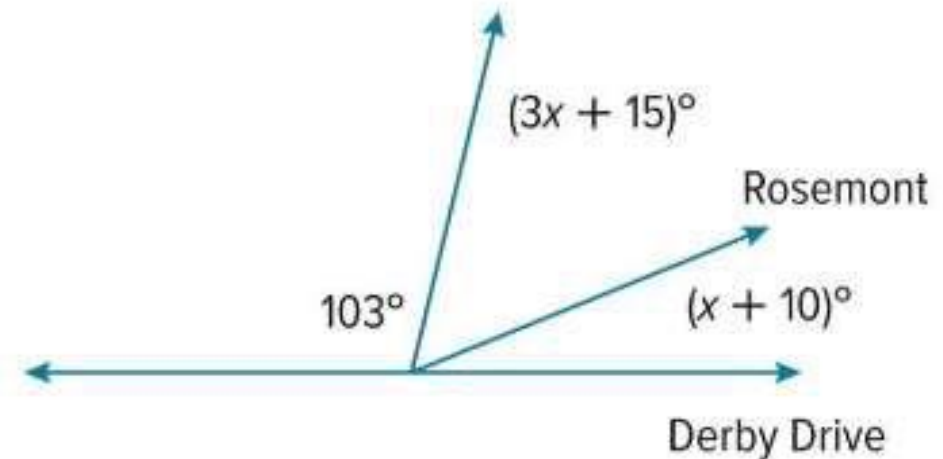
## Vertical and Adjacent Angles

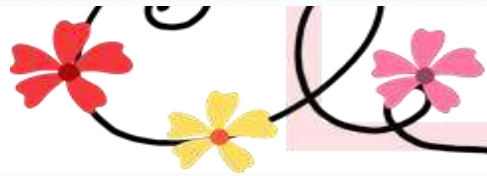


9. Levi was designing a kite. He needs to determine the measure of  $\angle A$  before cutting the fabric. What is the measure of angle  $A$ ?



10. Jess was drawing a map of her neighborhood. What is the measure of the angle of the intersection between Derby Drive and Rosemont?

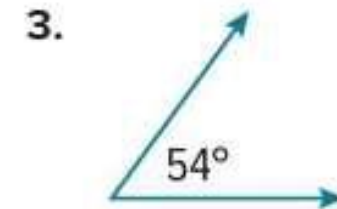
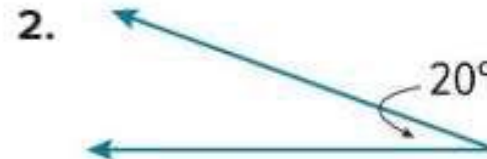
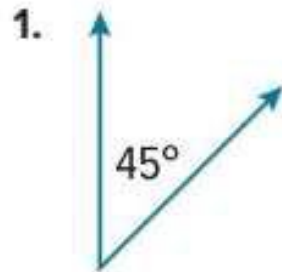




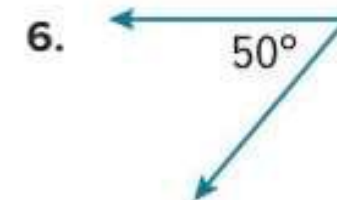
## Complementary and Supplementary Angles



Give the measure of the angle that is complementary to the given angle. (Example 1)

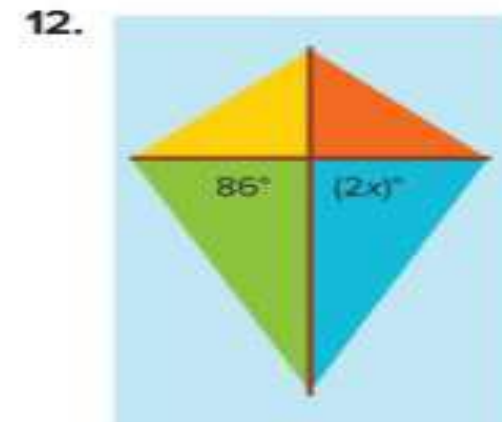
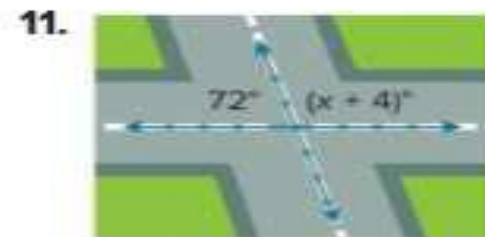
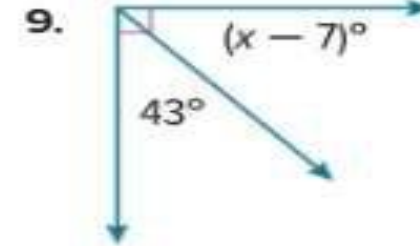
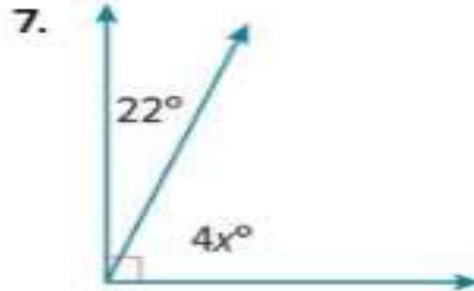


Give the measure of the angle that is supplementary to the given angle. (Example 3)



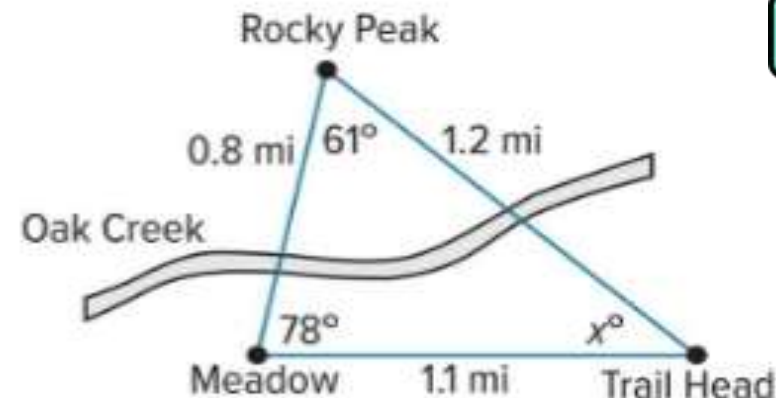
# Complementary and Supplementary Angles

Write and solve an equation to find the value of  $x$  in each figure. (Examples 2 and 4)

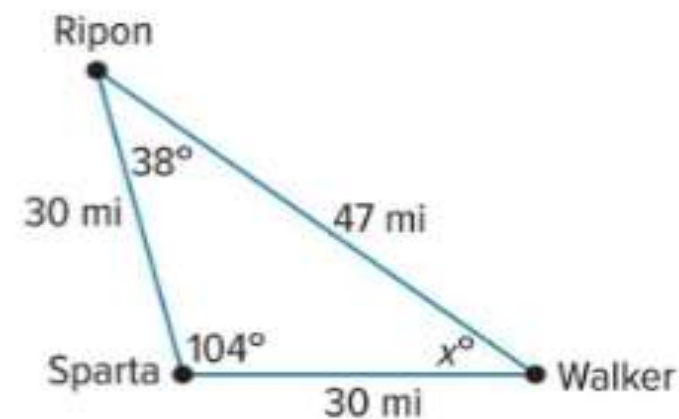


# Triangles

9. The figure shows the Oak Creek trail, which is shaped like a triangle. Solve the equation  $61 + 78 + x = 180$  to find the value of  $x$  in the figure. Then classify the triangle by its angles and by its sides.

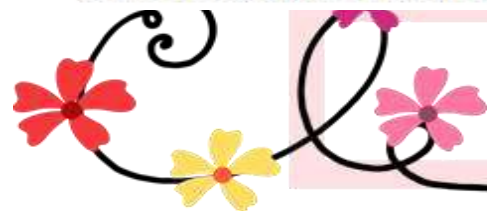


10. The three towns of Ripon, Sparta, and Walker form a triangle as shown. Solve the equation  $38 + 104 + x = 180$  to find the value of  $x$  in the triangle. Then classify the triangle by its angles and by its sides.





# Triangles



11. **MP Reason Abstractly** Without drawing the triangle, how do you know a triangle with a  $95^\circ$  angle, a  $95^\circ$  angle, and a 5-inch side is not possible?

12. Find the value of  $x$  in the diagram. Then, find the supplement of the missing angle.

