Compound Inequalities

Agenda

Warm-Up

HW Check

Notes (p.22)

HW #1-11

Reminders

Test 1 Corrections due Wed 5PM

Test 2 Thursday

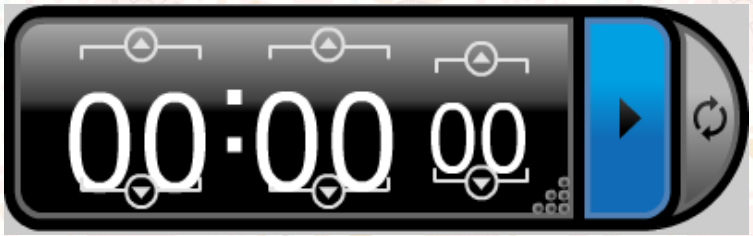
Quiz 2 Reflection & all late HW due Thurs

Essential Question

How do I find a solution to an inequality with more than 2 parts?

Warm-Up (Tuesday)

Solve the problems on the small sheet INDEPENDENTLY. Try your best!



Reminders

Have out your planners, etc.

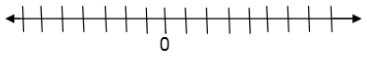
Monday	Tuesday	Wednesday	Thursday	Friday
22	23 Tutoring 8:15-9AM	24 Tutoring 8:15-9AM 4:15-5PM Test 1 Corrections due by 5PM	25 TEST Tutoring 8:15-9AM Last time to turn in HW 1.2, 1.3, 1.4 Quiz Reflection Due	26 Tutoring 8:15-9AM HW 1.5 Due No late 1.5's accepted
29	30 Tutoring 8:15-9AM	10/1 Tutoring 8:15-9AM 4:15-5PM Test 2 Corrections due by 5PM	2 End of 1st six weeks	3

Algebra I - Unit 1: Topic 2 – Solving Multi-Step Inequalities

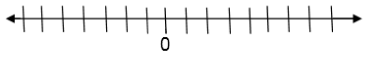
Practice - Solving Multi-Step Inequalities **pp 188-190**

Solve the following inequalities. Graph each answer on the number line provided.

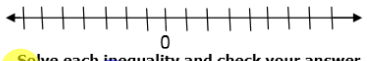
1. $-11 - 9x > -47$



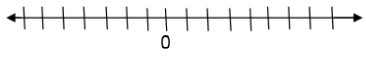
2. $7a - 5 < 9$



3. $10c + 11 < 5 + 8c$



4. $4n - 6 \geq 6n - 20$



Solve each inequality and check your answer.

5. $5p - (p - 6) \leq 0$

6. $15 > \frac{2m}{3} - 1$

7. $\frac{t+3}{2} < -8$

8. $\frac{-3x-1}{5} < 4$

Define a variable, write an inequality, and solve each problem. Then check your solution.

9. Two-thirds of a number decreased by 27 is at least 9.

10. The sum of a number and 84 is greater than the product of -3 and the same number.

11. Carol is buying asparagus and bananas at the grocery store. Asparagus costs $3.00 per pound and bananas cost $0.50 per pound. Which inequality best represents the number of pounds of asparagus, a, and bananas, b that Carol can purchase with at most $20.00.

A $3a + 0.5b < 20$
B $3a + 0.5b > 20$
C $3a + 0.5b \leq 20$
D $3a + 0.5b \geq 20$

12. The county water department charges a monthly administrative fee of $10.40 plus $0.0059 for each gallon of water used. Glen's family always pays more than $35 each month for water. Which inequality best represents the number of gallons of water, *g*, Glen's family uses each month?

A. $10.4g + 0.0059 > 35$
B. $10.4g - 0.0059 < 35$
C. $0.0059g + 10.4 > 35$
D. $0.0059g - 10.4 < 35$

Compound Inequalities p.22

Essential Question How do I find a solution to an inequality with more than 2 parts?

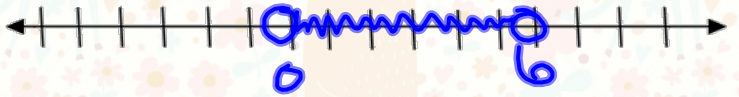
Compound Inequality: $-2 < n$, $n < 12 \rightarrow -2 < n < 12$

Graph the compound inequality.

1. $-3 \leq x < 2$

shade between dots

2. $0 < x < 6$



Write the compound inequality shown by each graph.

3.

$-4 < X < 3$

4.

$-1 < X \leq 4.5$

inequalities always face same way

Compound Inequalities p.22

Essential Question How do I find a solution to an inequality with more than 2 parts?

Solve the compound inequality and graph the solution set.

5. $4 \leq x + 2 \leq 8$

$-2 \quad -2 \quad -2$

$2 \leq x \leq 6$

x by itself

what you do to the middle you need to do to left & right.

6. $-5 \leq 2x + 3 < 9$

$-3 \quad -3 \quad -3$

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

$-4 \leq x < 3$

7. Jimmy's car can travel between 380 and 410 miles, inclusive, on a full tank of gas. He filled his tank up and drove 45 miles. How many more miles can he drive without running out of gas?

include equals

Let m be more miles.

Total: $m + 45$

$380 \leq m + 45 \leq 410$

$-45 \quad -45 \quad -45$

$335 \leq m \leq 365$

Jimmy can drive between 335 and 365 more miles.

8. Jose's allowance is doubled and is now greater than $10 but no more than $16. What amounts could his allowance have been before the increase?

J

x2

$\frac{10}{2} < \frac{2j}{2} \leq \frac{16}{2}$

$5 < j \leq 8$

Compound Inequalities p.22

Essential Question How do I find a solution to an inequality with more than 2 parts?

$0 < \text{acute} < 90$

$90 < \text{obtuse} < 180$

9. An acute angle is $(2x - 6)°$. Which of the following are possible values for x?

A. x = 2 $2(2)-6 = -2°$

B. x = 10 ✓ $2(10)-6 = 14°$ ✓

C. x = 45 ✓ $2(45)-6 = 84°$ ✓

D. x = 55 $2(55)-6$

$0 < 2x-6 < 90$

$+6 \quad +6 \quad +6$

$6 < 2x < 96$

$\frac{6}{2} < \frac{2x}{2} < \frac{96}{2}$

$3 < x < 48$

10. If an obtuse angle is $(4x - 10)°$, which of the following could not be a value of x?

A. x = 28

B. x = 30.5

C. x = 45

D. x = 47.5

$90 < 4x-10 < 180$

$+10 \quad +10 \quad +10$

$100 < 4x < 190$

$\frac{100}{4} < \frac{4x}{4} < \frac{190}{4}$

$25 < x < 47.5$

not equal

Algebra I - Unit 1: Topic 4 – Compound Inequalities

Practice: Compound Inequalities **pp 202-205**

Write the compound inequality shown by each graph.

1. 

2. 

Solve each compound inequality and graph the solutions.

3. $-15 < x - 8 < -4$

4. $12 \le 4n < 28$

5. $-2 \le 3b + 7 \le 13$

6. $5 < 3x - 1 < 17$

7. Which of the following is a solution of $-1 < x - 3 < 2$?

A 2 B 3

C -2 D 5

Write a compound inequality for each problem. Graph the solutions.

8. The temperature in a pet iguana's cage should be between 70° F and 95° F, inclusive.

9. Water is a liquid if its temperature is less than 100°C and greater than 0°C.

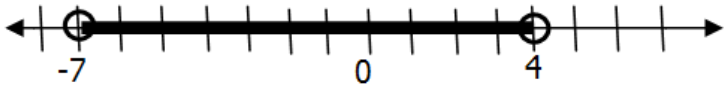
10. A tropical fish requires a water temperature between 68° F and 77° F, inclusive. An aquarium is heated 8 degrees so that a Tetra can live in it. What temperatures could the water have been before the heating?

11. Nathan will be working between 30 to 39 hours , inclusive, this week which is triple what he worked last week. How many hours did Nathan work last week?

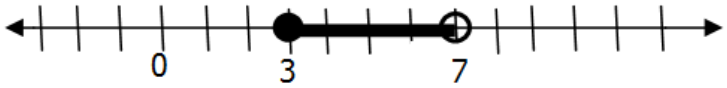
HW Check:
Compound Inequalities

Answers:

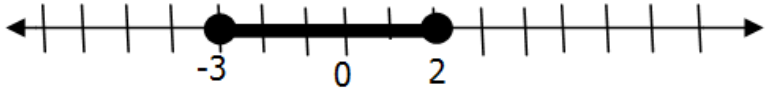
1. $-2 < x < 4$
2. $0 \le x < 20$
3. $-7 < x < 4$



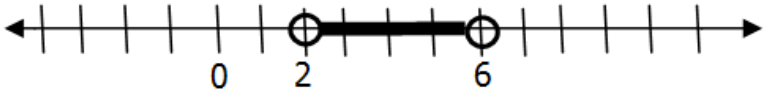
4. $3 \le n < 7$



5. $-3 \le b \le 2$



6. $2 < x < 6$



7. B
8. $70 \le x \le 95$
9. $0 < x < 100$
10. $68 \le x + 8 \le 77$; $60 \le x \le 69$
11. $30 \le 3x \le 39$; $10 \le x \le 13$