

Bell Ringer

0:01:54

Section 1.8

1. Write the phrase "all real numbers that are greater than -1 and less than or equal to 5" as a compound inequality.

$$x > -1 \text{ and } x \leq 5 \quad -1 < x \leq 5$$

2. What are the solutions of $-2 < x - 4 \leq 5$? Graph the solutions.

$$+4 \quad +4 \quad +4$$

$$2 < x \leq 9$$

3. What are the solutions of $\frac{1}{4} < \frac{3x-2}{4} < 7$?

$$1 < 3x - 2 < 28$$

$$3 < 3x < 30$$

$$1 < x < 10$$

$$(2, 9]$$

4. What is the solution of $1/3 - 0.02x = 6.50$?

$$-1.3 \quad -1.3$$

$$\frac{-0.02x = 5.2}{-0.02 \quad -0.02} \quad x = -260$$

Questions on ws??

SM1

Name _____ ID: 1

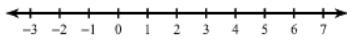
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Solve and Graph inequalities

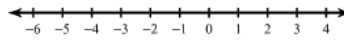
Date _____ Period _____

Solve each inequality and graph its solution. Then write the solution in interval notation.

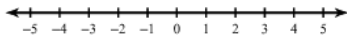
1) $-4 < -8x + 7x$



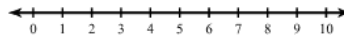
2) $5n - 1 + 8n \leq -1$



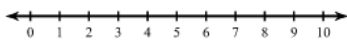
3) $1 - r + 7r < -17$



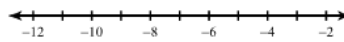
4) $-20 < -8p + 3p$



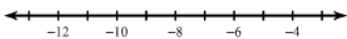
5) $x + 3 + 4 < 13$



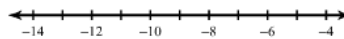
6) $6(1 + 3r) \leq -120$



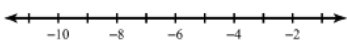
7) $-102 < 6(1 + 3m)$



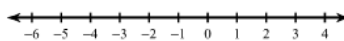
8) $268 \leq 2v + 8(-1 - 6v)$



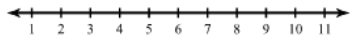
9) $3(-8 + 6b) - 7 > -85$



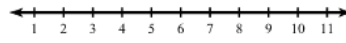
10) $179 \geq 6(1 - 7a) + 5$



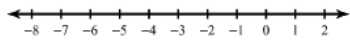
11) $-153 > -3 - 6(1 + 3n)$



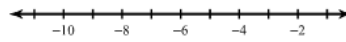
12) $-123 \geq 3(1 - 6n)$



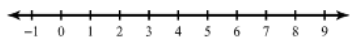
13) $2p - p < 4 + 3p$



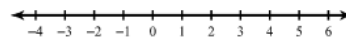
14) $2m - 1 > -8 + m$



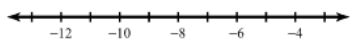
15) $r + 3 > 9 - r$



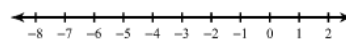
16) $-x + 4 < -3x - 2x$



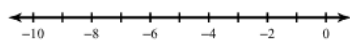
17) $x - 2 + 3x \leq 8 + 6x$



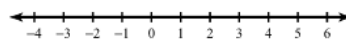
18) $-38 - 3b > -7(1 - 4b)$



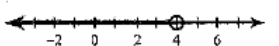
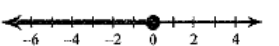
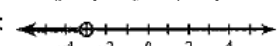
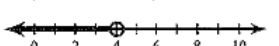
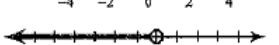
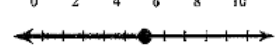

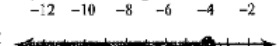
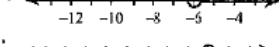
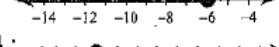
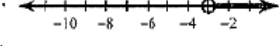
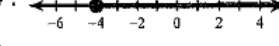
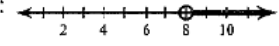
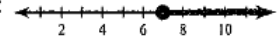
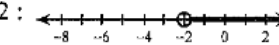
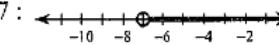
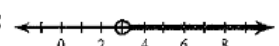
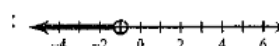
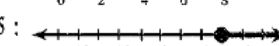
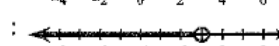
19) $-5n + 22 < 7(1 - 2n) + 4n$



20) $3(7 - 3v) \leq -6v + 24$



Answers to Solve and Graph inequalities (ID: 1)

- 1) $x < 4$:  $(-\infty, 4)$
- 2) $n \leq 0$:  $(-\infty, 0]$
- 3) $r < -3$:  $(-\infty, -3)$
- 4) $p < 4$:  $(-\infty, 4)$
- 5) $x < 6$:  $(-\infty, 6)$
- 6) $r \leq -7$:  $(-\infty, -7]$
- 7) $m > -6$:  $(-6, \infty)$
- 8) $v \leq -6$:  $(-\infty, -6]$
- 9) $b > -3$:  $(-3, \infty)$
- 10) $a \geq -4$:  $[-4, \infty)$
- 11) $n > 8$:  $(8, \infty)$
- 12) $n \geq 7$:  $[7, \infty)$
- 13) $p > -2$:  $(-2, \infty)$
- 14) $m > -7$:  $(-7, \infty)$
- 15) $r > 3$:  $(3, \infty)$
- 16) $x < -1$:  $(-\infty, -1)$
- 17) $x \geq -5$:  $[-5, \infty)$
- 18) $b < -1$:  $(-\infty, -1)$
- 19) $n < -3$:  $(-\infty, -3)$
- 20) $v \geq -1$:  $[-1, \infty)$

turn in hw tracker - week 1 (pink)

1.3 9-16, 19-31 odds, skip 27

1.4 1-13, 10-24, 29-30

1.5 1-12, 17-22

1.6 9-13, 18-21 (skip 19) 23-33 odds

1.7 11-18 all, 19-27 odds, 37, 38

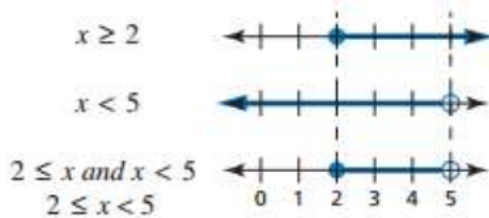
1.8 Graphing / Interval Notation ws

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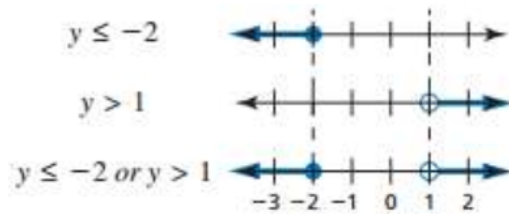
Lesson 1.8 - Solving Compound Inequalities

Word	Definition	Picture or Example
Compound Inequality	An inequality formed by joining two inequalities with “and” or “or”	$y \leq -2$ or $y > 1$ $2 \leq x$ and $x < 5$ $2 \leq x < 5$

“And” is the *intersection* of the graphs.
 Graph will show numbers that are solutions of *both* inequalities.



“Or” is the *union* of the graphs.
 Graph will show numbers that are solutions of *either* inequality.



Write a compound inequality represented by each graph.

- 1.
- 2.
- 3.

Write each sentence as an inequality. Graph the inequality and write it in interval notation.

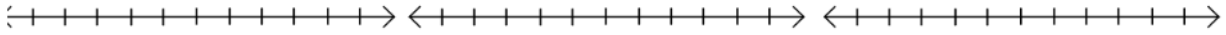
4. All real numbers less than 5 and greater than 3 <----->
5. All real numbers less than -3 or greater than or equal to 2 <----->
6. All real numbers greater than -2 or less than -6 <----->
7. All real numbers greater greater than 0 and less than 4 <----->

Solve each inequality. Graph the solution, then write the solution in interval notation.

8. $3 < x + 4 \leq 10$

9. $15 > -5t \geq -10$

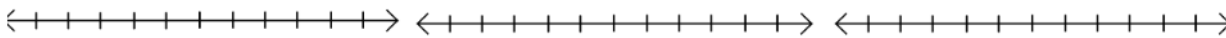
10. $-4 \geq 8 - 4q \geq -12$



11. $h + 7 < 5$ or $-9h < -45$

12. $-11 > m + 4$ or $2m \geq -16$

12. $3w + 2 < 5$ or $-w + 8 \leq 2$



Solve the inequality and graph the solution, if possible.

14. $2t - 15 < 3t - 17$ and $t - 13 < -19$

15. $a - 6 \leq 3$ or $3a + 2 > 8$



16. Your quiz scores in math are 86 and 93. What possible scores can you earn on your next quiz to have an average between 90 and 95??

avg score

$$(3) 90 \leq \frac{86 + 93 + x}{3} \leq 95 (3)$$

$$-270 \leq -179 + x \leq 285$$

$$-179 \leq x \leq 106$$

17. You and your friends are setting up a five- person basketball team for the summer. There are four of you and your heights are 6'1", 5'4", 5'9" and 5'5". If you want your average team height to be between 5'8" and 6'2", how tall does your fifth person need to be?!?!?!?

$$(5) 68 \leq \frac{73 + 64 + 69 + 65 + x}{5} \leq 74 (5)$$

$$340 \leq 271 + x \leq 370$$

$$-271 \leq x \leq 99$$

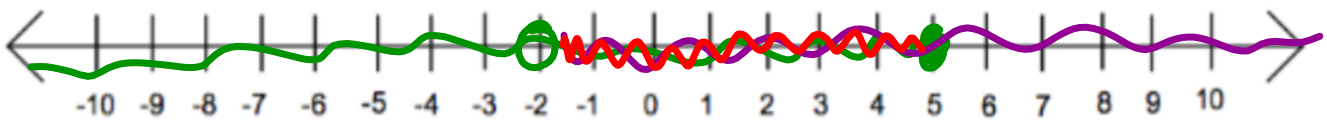
$$69 \leq x \leq 99$$

$$5'9" \leq x \leq 8'3"$$

Difference between "and" and "or"

$$-2 < x \leq 5$$

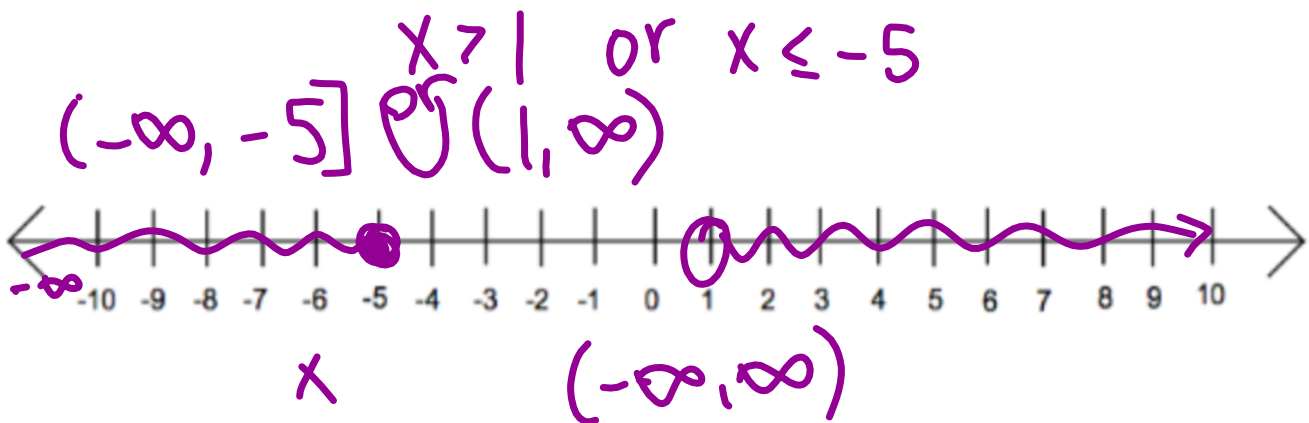
$$(-2, 5]$$



Review this "and" scenario

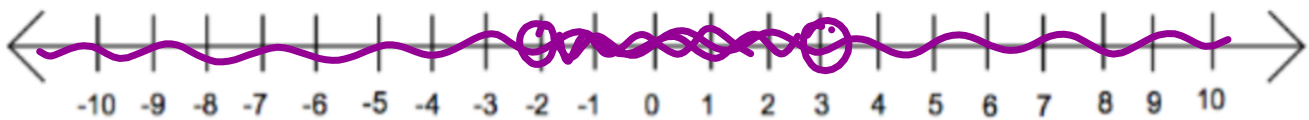
Ⓢ .

Difference between "and" and "or"



Difference between "and" and "or"

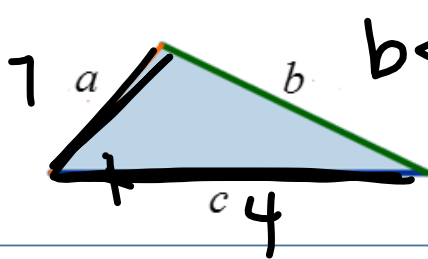
$$x > -2 \text{ or } x < 3$$



Triangle Inequality Theorem

Triangle Inequality Theorem

$+$
The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

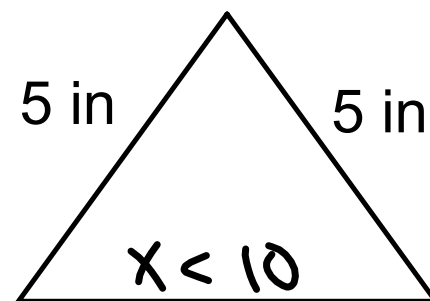
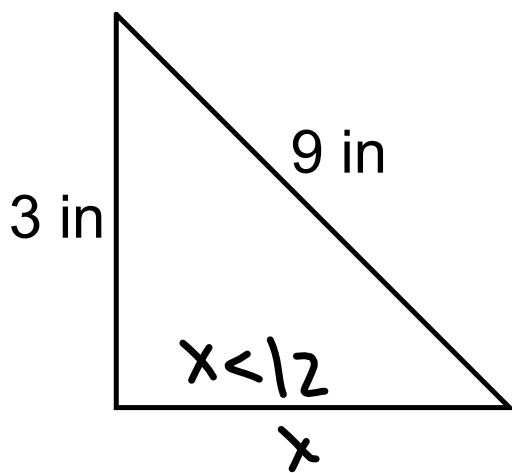


$$a + b > c$$

$$a + c > b$$

$$b + c > a$$

Triangle Inequality Theorem



hw 1.8 11-36

due Thurs