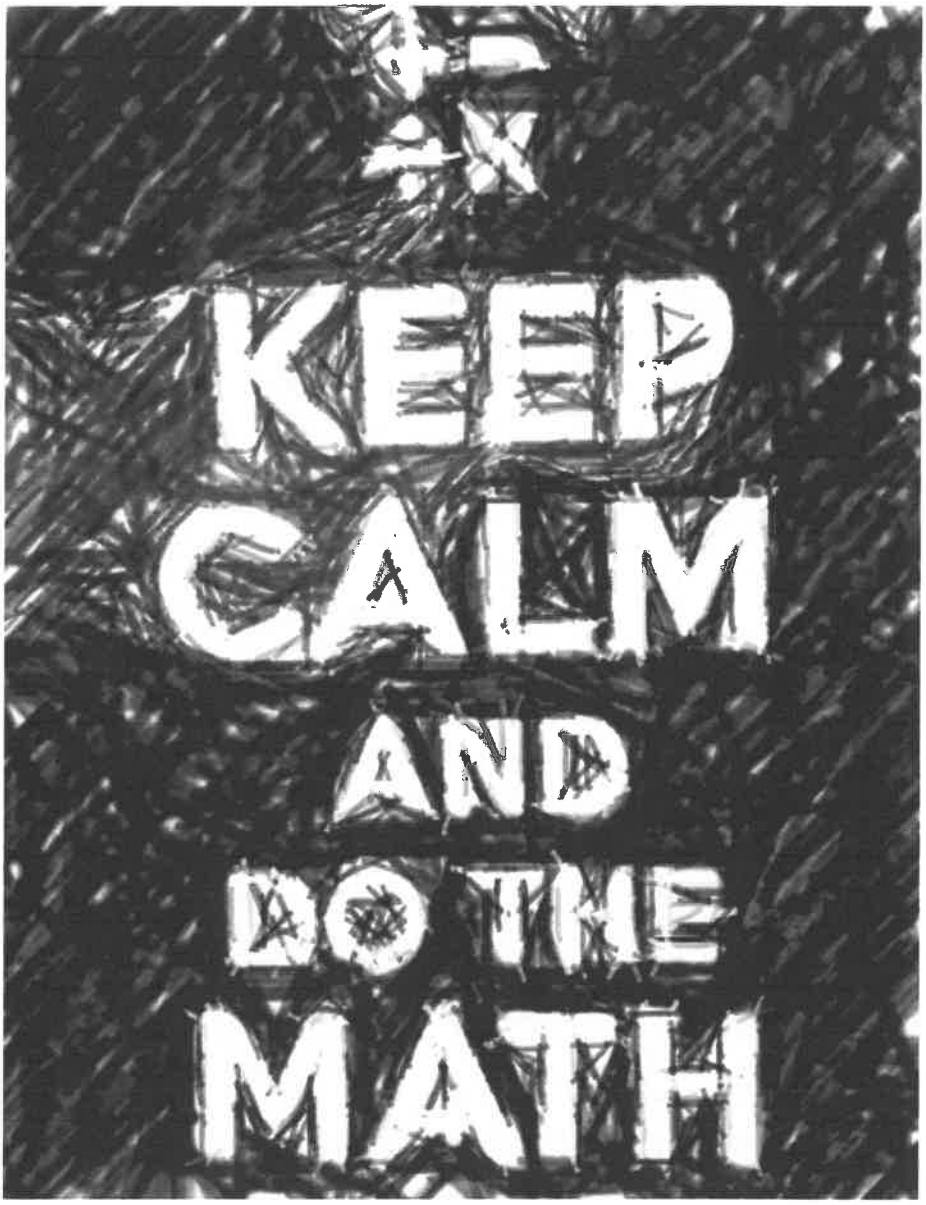
NAME: _____

Math P.A.T. Prep

Inequalities - SOLUTIONS



St. Brendan School

Mr. Martínez

INEQUALITIES

- solve exactly as you would solve equations. 1 exception

The cost of a team banquet is $200 for the room rental and $15 per person, n, for the meal. All taxes are included in these costs. The team has a maximum budget of $650 for the banquet.

20. The inequality that can be used to determine how many people can attend is

A. $15n + 200 > 650$
B. $15n + 200 < 650$
C. $15n + 200 \geq 650$
D. $15n + 200 \leq 650$

- $200 → flat fee
- cost per person → $15n
- Team has to spend $650 or less

$15n + 200 \leq 650$

has to be less or equal to 650

Numerical Response

8. How many whole numbers could represent the value of x in the inequality statement $\frac{1}{4} < \frac{3}{x} < 0.5$?

$\frac{1}{4} < \frac{3}{x} < \frac{1}{2}$

0.25 0.50

~~4~~ ~~3~~ ~~2~~ ~~1~~

7, 8, 9, 10, 11

Answer: ____5____ **whole numbers**

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 20.

Chantal receives a $50 gift card to join the online music store shown below.

20. Which of the following inequalities can be used to determine the maximum number of songs that Chantal can purchase with her gift card?

A. $50 \geq 5 + 0.99x$
B. $50 > 5 + 0.99x$
C. $50 \leq 5 + 0.99x$
D. $50 < 5 + 0.99x$

- Chantal can not spend more than $50 (but can $50)
- $50 has to be equal or less to the $5 sign-up fee plus $0.99x$

Kristy received a speeding ticket for travelling above the posted limit.

12. The inequality that shows the speed, s, that Kristy was travelling at is

A. $s \leq 100$ km/h
B. $s < 100$ km/h
C. $s \geq 100$ km/h
D. $s > 100$ km/h

she must have been going above 100 km/h

6. The solution to the inequality $6 - x > -1$ is

A. $x < 7$
B. $x > 7$
C. $x < -7$
D. $x > -7$

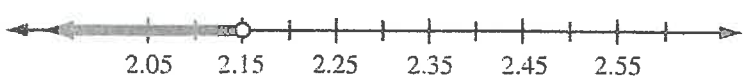
$-x > -7$
$\frac{-x}{-1} > \frac{-7}{-1}$
$x < 7$

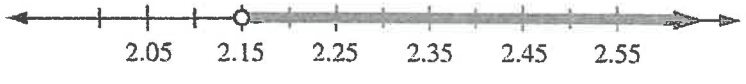
$6 - x > -1$
$-x > -1 - 6$
$-x > -7$

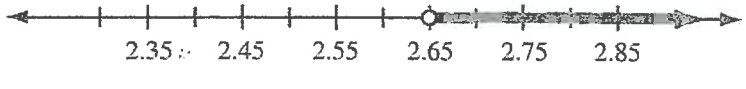
But, anytime we multiply or divide by a neg. #, we switch the ineq.

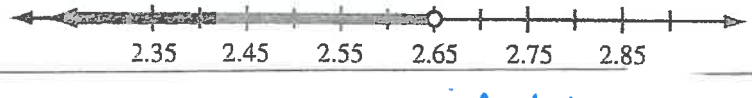
Aaron buys a cheeseburger for \$6.50 and a container of milk for \$0.80. Sam buys a tossed salad and a bowl of soup. The soup costs \$2.00 more than the salad. Sam's meal is less expensive than Aaron's meal.

2. Which of the following number lines could represent the price of Sam's salad?

A.


B.


C.


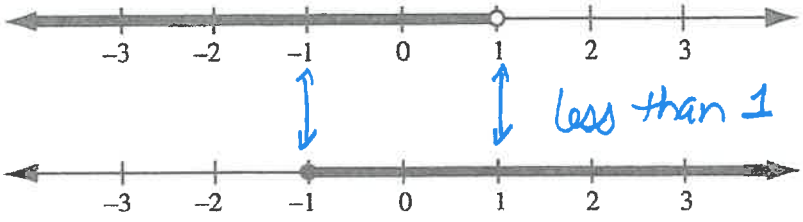
D.


Aaron
\$6.50 + 0.80

Sam
soup + salad
$(2 + sa) + sa$
$2 + 2sa < 7.3$
$2\,Salad < 5.3$
$Salad < \frac{5.3}{2}$
$Salad < 2.65$

the salad has to cost less than \$2.65

An inequality is shown on each number line below.

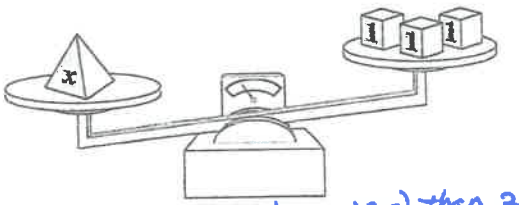


1 not included

less than 1 but equal or higher to -1

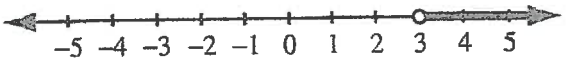
5. Which expression represents the values (n) that are part of both inequalities?

A. $-1 \leq n \leq 1$
B. $-1 \leq n < 1$
C. $-1 < n \leq 1$



x is more (heavier) than 3

I

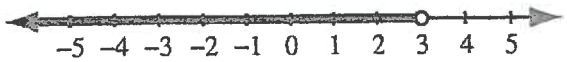


x is higher than 3 (but NOT 3)

III

x is higher than 3

II



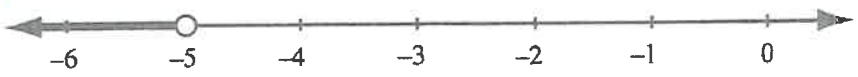
IV

24. The two diagrams shown above that **both** represent the inequality $x > 3$ are numbered

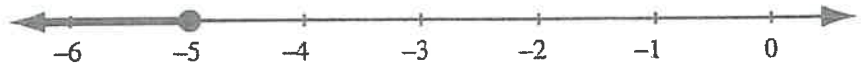
A. I and III
B. I and IV
C. II and III
D. II and IV

8. Which of the following number lines represents the solution to the inequality $5x - 3 \leq 7x + 7$?

A.



B.



C.

D.

$5x - 3 \leq 7x + 7$

$-5x \quad -5x$

$-3 \leq 2x + 7$

$-7 \quad -7$

$\frac{-10}{2} \leq \frac{2x}{2}$

$-5 \leq x$

x is greater and/or equal to −5

Sandy has a budget of $100 to spend on back-to-school clothes. The shirts she wants to buy are $12 each, and the pants she wants to buy are $25 each. All prices include tax.

29. Which of the following inequalities could be used to determine the maximum number of shirts, n, Sandy can buy if she also buys 2 pairs of pants?

A. $12n - 2(25) \leq 100$
B. $12n + 2(25) \leq 100$
C. $2(25) - 12n \geq 100$
D. $2(25) + 12n \geq 100$

- spend $100 or less

$12s + 25p$ → 2(25) for 2 pants

$12n + 50 \leq 100$