Single Step Inequalities

Warm-Up

Distribute, Simplify, Combine Like Terms:

1. $2(2x-5)-3(2x-1)$

$4x-10-6x+3$

$-2x-7$

Evaluate the expression if x=-4 and y=8:

2. $\dfrac{\frac{1}{2}x^2+y}{y}$

$\dfrac{\frac{1}{2}(-4)^2+8}{8}$

$=\dfrac{16}{8}=2$

Agenda

Warm-Up

HW Check

Notes (foldable) p.19

HW Practice - EVENS

HW Check

mskmathrhs.weebly.com

Answers:

1. C
2. 25%
3. $6.25
4. 20% 207.
5. 35%
6. 3.896%
7. 6%
8. 82%
9. C
10. $453.49
11. $165.88
12. 173.4 million
13. $2n - 10$

Algebra I - Unit 1: Topic 3 – Percent of Change

Practice - Percent of Change pp 138-143

Name _____ Date _____ Per _____

1. Which of these represents a 15% increase?

   A The value of an antique went from $60 to $90.

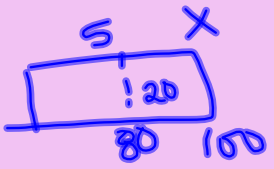
   B The price of movie tickets rose from $7.20 to $9.00.

   C Alisha's hourly wage went from $8.00 to $9.20.

   D The price of two rounds of putt-putt golf increased from $10 to $12.50.

2. A book bag is on sale for $19.05 down from the original price of $25.40. By what percent has the book bag been marked down?

3. A movie matinee ticket at a local theater costs 20% less than the regular price. If a movie matinee ticket costs $5.00, what is the regular price?



$500 = 80X

$6.25

4. The original price of an item was $200. During a sale, the price was reduced by 45%. Then, during a clearance sale, the price was reduced to a final sale price of $88. What percent was the item discounted during the clearance sale?

$110

80%

100-80=20%

5. Original selling price of a new sports video was $65.00. Due to demand the price was increased to $87.75. What was the percent of increase over the original price?

6. The table below shows how the number of state government jobs held by people who live in San Antonio, Texas, decreased from January to July of 2002.

Month	Number of Jobs
January	15,400
July	14,800

What percent did the number of government jobs held by people who live in San Antonio, Texas, decrease during this time period?

Algebra I - Unit 1: Topic 3 – Percent of Change

7. Juan received a raise. If his hourly wage increased from $6.50 to $6.89, by what percent did his hourly wage increase?

8. A store pays $79 for a CD player, which it then sells for $144.30. What is the percent markup from the original price?

9. Greg is buying soft drinks for a class party. He discovers that one case of drinks costs $6.79. However, if he buys 20 cases or more, he will receive a 10% discount. A reasonable conclusion about the price for 20 cases would be _____ _____.

A. more than $140
B. between $130 and $140
C. between $120 and $130
D. less than $120

10. Airfare prices are predicted to increase 8% this winter. How much will a ticket to New York which now sells for $419.90 cost this coming January?

11. Grocery prices are expected to increase 4% during the next year. Approximately how much will a family which now spends $159.50 per week for groceries expect to pay at the increased rate?

$\frac{159.50}{\square} = \frac{x}{\square}$

$\frac{\square}{100} = \frac{1}{104}$

12. On a typical day, sanitation workers collect about 170 million tons of household garbage. It is expected that the amount collected will grow approximately 2% annually over the next several years. If that forecast is correct, about how many tons of household garbage will be collected on a typical day next year?

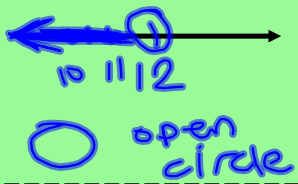
$\frac{2}{100} = \frac{x}{170}$

$3.4 + 170 =$ 173.4 million tons of trash

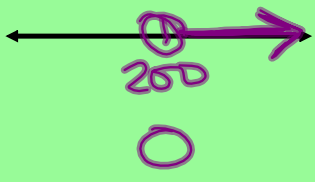
13. Review:
Write an expression for the verbal statements:

ten less than twice a number

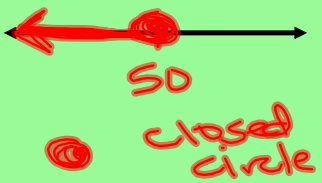
Children younger than 12 years must be accompanied by an adult to play paintball.



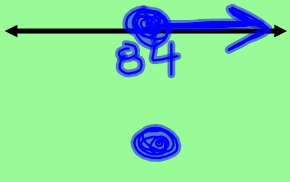
John needs to earn more than $200 in order to have enough money to buy the new iPhone.



Jessica was told she could spend at most $50 on a new dress.



Michael needs to make at least an 84 on his algebra test so that he will no longer be grounded.

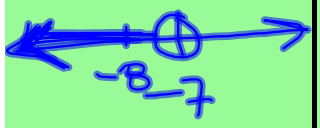


Solve:

$-29 + x < -36$

$+29 \quad +29$

$x < -7$



Solve:

$-5x < -25$

$-5 \quad -5$

$x > 5$

Solve:

$3 \cdot \frac{x}{3} \leq -15 \cdot 3$

$x \leq -45$

Solve:

$-3 \leq p + 6$

$-6 \quad -6$

$-9 \leq p$

INEQUALITIES p.19

$2 \cdot 1 < 2 \cdot 2$

$2 < 4$ ✓

$\frac{1}{2} < \frac{2}{2}$

$\frac{1}{2} < 1$ ✓

$-2 \cdot 1 < 2 \cdot -2$

$-2 < -4$

$-2 > -4$

$\frac{1}{-2} < \frac{2}{-2}$

$-\frac{1}{2} < -1$

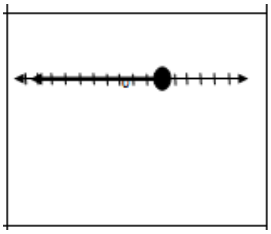
$-\frac{1}{2} > -1$

THE ONE RULE FOR INEQUALITIES

When you multiply or divide by a negative number, flip the sign!

Card Match

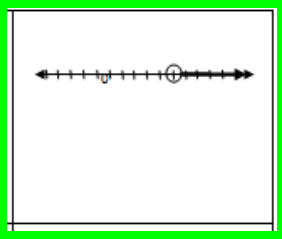
Match each word problem with an inequality, the answer, and the graph of the answer on the number line.

Negative four times a number is no less than 4.	$2x \leq 4$	$x > 5$	

The difference of a number and two is greater than three.

$-4x > 4$

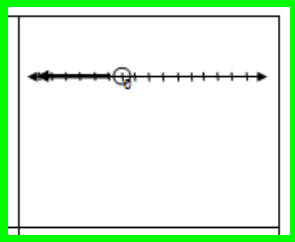
$x \le \frac{-8}{3}$



$\frac{x}{-4} \ge -2$

Three-fourths of a number is at most negative two.

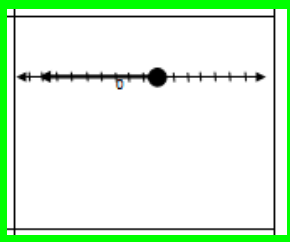
$x \ge \frac{2}{3}$



The quotient of -4 and a number is at least negative two.

$x - 2 > 3$

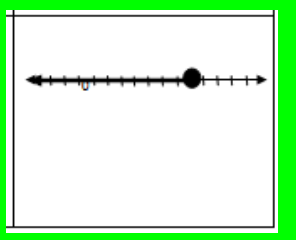
$x \le 2$



Negative four times a number is no less than 4.

$\frac{3}{4}x \le -2$

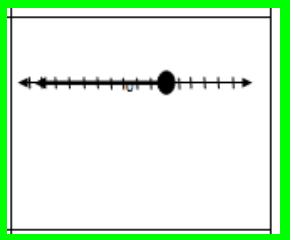
$x < -1$



Twice a number is no more than 4.

$3x \ge 2$

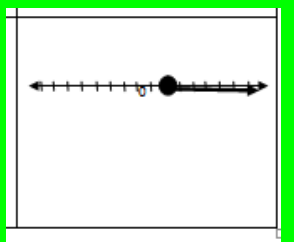
$x > 5$



The product of a number and three is at most 2.

$2x \le 4$

$x \le 8$



EVENS

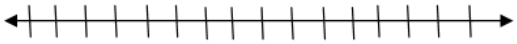
Algebra I – Unit 1: Topic 4 – Solving Single Step Inequalities

Practice - Solving Single Step Inequalities p 168-170, 174-176, 180-182

Name_____ Date_____ Pd____

Solve and graph the following inequalities. Remember to check your work.

1. $-8 > 3 + n$



2. $-5x > -25$

3. $7 < -x$

4. $\frac{x}{-4} \geq 2$

Solve each inequality. Then check your solution.

5. $\frac{2}{3}x < -22$

6. $51 \leq x - (-49)$

7. $\frac{x}{3} \leq -15$

8. $\frac{4}{7}x > \frac{4}{49}$

9. $-\frac{3m}{4} < \frac{2}{3}$

10. $\frac{n}{8} \geq \frac{1}{2}$

Define a variable, write an inequality, and solve each problem.

11. The difference of a number and four is greater than forty-two.

12. Three-fourths of a number is at most -18.

$\frac{3}{4}x \leq -18$

Algebra I - Unit 1: Topic 4 – Solving Single Step Inequalities

Define a variable, write an inequality, and solve each problem.

13. A number divided by 7 is at least negative three.

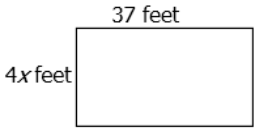
14. Negative four times a number is no less than 204.

15. Twice a number is no more than 76.

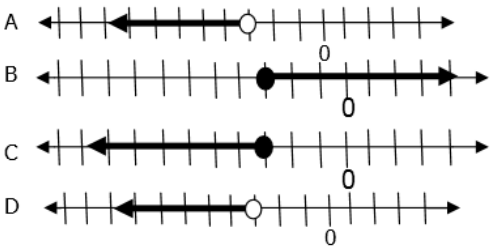
16. The product of a number and twelve is at most 36.

Answer the following.

17. Determine the value of x so that the area of the rectangle below is at least 814 square feet.



18. Which graph shows the solution of $\frac{-2}{3}n \leq 2$?



19. Chelsea's baby sister is 25 inches long. She is wearing pajamas that fit babies up to 32 inches long. Which inequality can be used to find x, the number of inches that the baby can grow and still fit into the pajamas?

A $32 \leq 25 - x$
B $32 \leq 25 + x$
C $32 \geq 25 - x$
D $32 \geq 25 + x$

20. The mayor of Renee's town chose 160 students from her school to attend a city debate. This is no more than $\frac{1}{4}$ of the students in Renee's school. What is n, the least number of students who could attend Renee's school?

A $n \leq 640$ B $n \leq 40$ C $n \geq 640$ D $n \geq 40$

21. Claudia can spend up to \$1500 on paper for her business this year. Paper costs \$32 per box. Which inequality represents the number of boxes of paper p she can buy this year?

F $32p \leq 1500$
G $32p \geq 1500$
H $32 + p \geq 1500$
J $32 + p \leq 1500$