Name: MRS. McLEAN 11

Inequalities Study Guide

B 1. What is the solution to the inequality $-2x - 25 > 9$?

*Flip!

$+25 \quad +25$

$\frac{-2x}{-2} > \frac{34}{-2}$ ↓

$x < -17$

A. $x > -17$ B. $x < -17$
C. $x > -8$ D. $x < -8$

C 2. Which set of numbers is included in the solution set of $5 - 5x < -30$?

$-5 \quad -5$

$\frac{-5x}{-5} < \frac{-35}{-5}$ ↓

$x > 7$

all these #s are greater than 7

A. {2, 5, 6} B. {-2, 0, 5} C. {8, 9, 10.5} D. {15, 25, 7}

B 3. The beta club has a budget of at most $360 for a field trip to tour ECU. There are 25 members in the beta club. The total transportation cost for all the members will be $85. What is the maximum amount of money they can spend on lunch per person that the beta club could afford?

$85 + 25x \leq 360$

$x \leq$

A. $12 B. $11 C. $15 D. $10

D 4. At the State Fair, the cost to get in is $8, plus $0.50 for each ticket you buy. Which inequality would you use to find the number of tickets you can buy if you have $15.50?

1 time fee

variable

$8 + .5x \leq 15.50$

$x \leq 15$

A. $15.50 < 0.50t + 8$ B. $0.50 + 8t \leq 15.50$
C. $0.50t + 8 \leq 4.30$ D. $8 + 0.50t \leq 15.50$

B 5. A trampoline will hold up to 550 pounds.
- There are four people on the trampoline.
- Anna weighs 125 pounds, Bryson weighs 148 pounds and Katie weights 127.

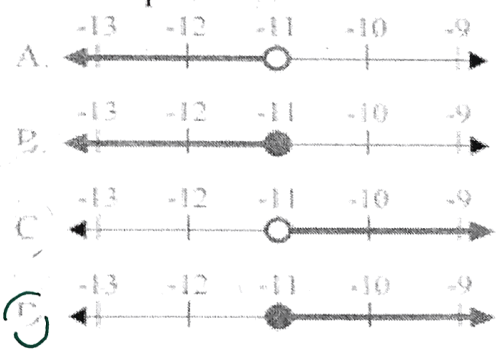
Which inequality represents the weight, w, of a third person?

A. $w \geq 150$ $125 + 148 + 127 + x \leq 550$
B. $w \leq 150$ $400 + x \leq 550$
C. $w \leq 277$ $x \leq 150$
D. $w \geq 277$

A 6. Josh and Morgan are going to the ice skating rink on Saturday. They will be meeting five of their friends to skate for 3 hours. After they ice skate, they are going to get pizza. The ice skating rink only allows children that are 14 years of age or older to be unattended. Which inequality represents the age limit, a, at the ice skating rink?

- a≥14 $x \geq 14$
- a<14
- a≤14
- a>14

D 7. In Alaska the plants are fine as long as the temperature is no less than -11 degrees Fahrenheit. Which graph is the solution to this inequality?



$x \geq -11$

B 8. Which value is not a solution of $3x + 4 < -11$?

- -6 ✓
- -4 not less than -5
- -14 ✓
- -10 ✓

$3x + 4 < -11$

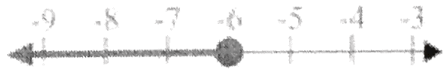
$-4 \quad -4$

$\frac{3x}{3} < \frac{-15}{3}$

$x < -5$

D 9. What is the inequality that is represented by the graph?

$x \leq -6$



reverse it!

X $-6 \leq x \Rightarrow x \geq -6$ not true!

$-6 \geq x$

- $-6 > x$
- $-6 < x < 8$
- (D) $-6 \geq x$

D 10. Which graph represents the solution to $6x + 24 \geq 102$?

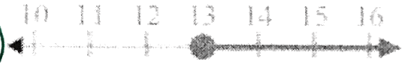
$6x \geq 78$

$x \geq 13$

A.


B.


C.


(D)


_____ 11. Which value for *x* makes both inequalities true?

$x < 3$
$x > 2$

A. 1

(B) $\frac{5}{2}$ 2.5 → in between 2 and 3!

C. 0

D. $\frac{4}{15}$

C 12. My mom drove at least 60 mph on the way to Raleigh today. She graphed how fast she was driving on a number line. I noticed she graphed it incorrectly.

$\geq$

$x \leq 60$ → change sign!

How can I correct the mistake on the graph?

- Change the closed circle to an open circle.
- Change the circle to 61.
- (C) Change the shading to the right.
- Change the circle to 59.

C 13. The most fun amusement park in Virginia is Bush Gardens. We go every summer to ride roller coasters! Busch Gardens has a minimum height requirement on all roller coasters that is 48 inches Which inequality correctly represents this height requirement, h?

$x \geq 48$

- $h \leq 48$
- $h < 48$
- (C) $h \geq 48$
- $h > 48$

D 14. Which graph represents the solution set for the inequality?

$17 \leq 3x + 5$

$-5 \quad -5$

$\frac{12}{3} \leq \frac{3x}{3}$

$4 \leq x \Rightarrow x \geq 4$

a)


b)


c)


(d)


B 15. What is the solution set of the graph above?

$x \leq -1$

- $x < -1$
- ◉ $x \leq -1$
- $x \geq -1$
- $x^2 - 1$

C 16. Michelle got a trampoline and an electric scooter for Christmas. Her grandma gave her a $100 bill. Which inequality models what the maximum amount of money she can spend at the mall?

- $s < 100$
- $s > 100$ $x \leq 100$
- ◉ $s \leq 100$
- $s \geq 100$

D 17. Use the graph below to answer the question that follows.

$x < 3$

This graph is the solution set for which inequality?

- $x - 10 > 3$ $x > 13$
- ✓ $x - 3 \geq 10$ $x \geq 13$
- ✓ $6x \geq -2$ $x \geq \frac{-1}{3}$
- ◉ $2x < 6$ $x < 3$

18. Krista is wanting to save up money to buy her family Christmas presents. She already has $40 in her piggy bank. Krista babysits at the rate of $8.50 per hour. How many hours, h, does Krista need to babysit in order to save up at least $135?

variable

$40 + 8.5h \geq 135$

$h \geq 11.176$

at least {12 hours}

19. Austin buys a shirt for $35 and a pair of pants for $40. He spends the rest of his money on socks. He can only spend $110. Each pair of socks is $7.00. What is the greatest number of socks he can buy?

variable

$35 + 40 + 7x \leq 110$

$75 + 7x \leq 110$

$7x \leq 35$

$\{x \leq 5\}$

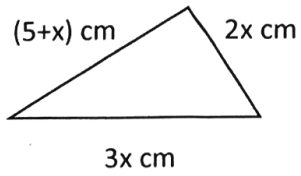
20. What is the smallest value of x so that the perimeter of the triangle shown is at least 47 centimeters?

add all sides

$5 + x + 2x + 3x \geq 47$

$6x + 5 \geq 47$

$x \geq 7$



21. Shannon has a pool that can hold a maximum of 6250 gallons of water. The pool already contains 2250 gallons of water. Marcus begins to add more water at a rate of 80 gallons per minute.

variable

(a) Write an inequality that shows the number of minutes, m, Shannon can continue to add water to the pool without exceeding the maximum number of gallons.

$\leq$

$2250 + 80m \leq 6250$

(b) Solve the inequality you created. Circle your final answer.

$m \leq 50$

22. Ms. Gorham will spend a maximum of $150 on her shopping spree. She decides to spend $42 a new pair of hot pink shoes. With the left over money, she is going to buy some shirts for $27 each. How many shirts will she be able to purchase?

variable

$\leq$

(a) Write an inequality to describe the situation.

$42 + 27x \leq 150$

(b) How many shirts can she buy?

$x \leq 4$