7.4 Modeling with Inequalities

NOTES

MATH 7

Write your questions here!

Equation	Inequality
The sum of a number and six is negative twelve	The sum of a number and six is less than negative twelve

Key Words!

$>$	$\geq$	$<$	$\leq$
More than Greater than Larger than Above	At least Not less than Minimum	Less than Smaller than Below	At most Not more than Maximum

Write an inequality to represent the following.

French Club is raffling a basket of French goodies for a fundraiser. Tickets for the raffle sell for $2. The club spent $20 to make the basket. How many tickets do they need to sell in order to make more than $200?

Mr. Kelly is having a Math Day party. He can spend no more than 300 dollars. He spent 25 dollars on coca cola classics and wants to buy as many 10 dollar pizzas as he can. How many pizzas can he buy?

Bring the Pain!

Sully has 12 followers on Insta. He gets 4 new followers every day. How long will it take for him to have at least 100 followers on Insta?

Inequality

Variable and what it represents

Solution

Graph of the solution set

SUMMARY:

Now, summarize your notes here!

Sentence explaining the solution.

Multiple Choice. Select the inequality that represents the situation.

1. Twice a number increased by seven is greater than four.

   (A) $n + 2 + 7 < 4$

   (B) $2n + 7 < 4$

   (C) $n + 2 + 7 > 4$

   (D) $2n + 7 > 4$

2. When 12 is subtracted from 3 times a number, the result is no more than 24.

   (A) $12 - 3n \leq 24$

   (B) $3n - 12 \leq 24$

   (C) $3n - 12 < 24$

   (D) $12 - 3n < 24$

3. Jake has 8 cupcakes. He makes 12 cupcakes every hour. He plans to bake until he as at least 48 cupcakes.

   (A) $8h + 12 \geq 48$

   (B) $8h + 12 > 48$

   (C) $8 + 12h \geq 48$

   (D) $8 + 12h > 48$

4. Saundra has 50 dollars to spend on souvenirs. She buys a magnet for $2.50 and 6 keychains for her friends. The keychains are all the same price. How much are the keychains?

   (A) $50 \geq 2.50 + 6k$

   (B) $50 \leq 2.50 + 6k$

   (C) $50 \geq 6k - 2.50$

   (D) $50 \leq 6k - 2.50$

5. Anthony went to the hobby shop and bought 2 model airplanes at $8.95 each and some paints. If he spent more than $23.65, what was the cost of the paints? Include an equation to represent this.

   (A) $2 + 8.95 > 23.65p$

   (B) $2(8.95) + p > 23.65$

   (C) $8.95 + 2p > 23.65$

   (D) $2p + 8.95 > 23.65$

6. Kendra is buying bottled water for a class trip. She has 18 bottles left over from the last trip. She buys bottles by the case to get a good price. Each case holds 24 bottles. How many cases will she have to buy if she wants to have more than 160 bottles of water?

   (A) $24 + 18 > 160c$

   (B) $c > 160 - 24 - 18$

   (C) $24c + 18 > 160$

   (D) $24 + 18c > 160$

Create an inequality to model the following. Solve your inequality. SHOW ALL STEPS!

7. The quotient of a number and three increased by 12 is no more than 20. What is the number?

Inequality: **Solution:**

8. Five increased by product of a number and three is greater than 23. What is the number?

Inequality: **Solution:**

9. The product of negative two and a number decreased by four is at least thirty-six. What is the number?

Inequality: **Solution:**

10. The local flea market charges the vendors a flat rate of $25 plus $5 for each hour that they spend at the market. If the vendor owed at least $60, how many hours did he remain at the flea market?

Inequality: **Variable and what it represents:**

Solution: **Sentence explaining the solution:**

11. Mr. Kelly starts the day off with 49 Jolly Ranchers. He eats 6 Jolly Ranchers every hour. He wants to have at least 4 Jolly Ranchers left over for his kids. How long can he eat Jolly Ranchers for?

Inequality: **Variable and what it represents:**

Solution: **Sentence explaining the solution:**

12. A cellphone company charges $19 plus $0.25 for each text message sent. The total bill was greater than $47.50. How many text messages were sent?

Inequality: **Variable and what it represents:**

Solution: **Sentence explaining the solution:**

WRAP UP

1. Andre has \$650 in a savings account at the beginning of the summer. He wants to have at least \$200 in the account by the end of the summer. He withdraws \$25 each week for food and entertainment. How many weeks will his money last?

Inequality **Variable and what it represents**

Solution **Sentence explaining the solution.**

2. Katelyn would like to have some bracelets made for her friends. A bracelet maker charges a flat rate of \$4, plus \$0.75 per bracelet. Katelyn has saved \$29 to for the bracelets. How many bracelets can she get?

Part A
Write an inequality where b stands for the number of bracelets Katelyn can get.

PART B
Solve the inequality.

PART C
Which of the following are possible values of b that would make the inequality true?

$b = 20$ $b = 25$ $b = 30$ $b = 35$

EXIT TICKET –

Jamal rents a car for one day. The charge is \$30 plus the \$0.15 per mile. He spent no more than \$90. He writes the inequality below to represent this.

$$30m + 0.15 < 90$$

Is his inequality correct? Explain why or why not.