

Linear Inequality Word Problems

1. A website claims that the daily magnesium intake for an 18-30 year old is 350 milligrams. A cup of orange juice (x) contains 25 milligrams of magnesium while a cup of grapefruit juice (y) contains 30 milligrams of magnesium. Which of the following inequalities represents the number of cups of juice an 18-30 year old would have to drink to exceed his or her daily intake? (no calculator)

- A) $25x + 30y > 30$
- B) $30x + 30y > 25$
- C) $25x + 30y > 350$
- D) $25x + 30y \leq 350$

2. Geoff visits his local grocery store to buy red apples. The store is having a sale where the first apple is \$2 and then every apple after that is only \$0.50 cents. If Geoff has \$7.75, what is the maximum number of apples Geoff can buy? (calculator)

- A) 11 apples
- B) 12 apples
- C) 13 apples
- D) 14 apples

3) A scale at a shipping warehouse has a limit of 500 pounds. The warehouse is planning to ship out a wooden crate filled with bricks. The wooden crate itself weighs 28 pounds while each brick weighs 2 pounds. If the warehouse plans to pack the wooden crate as much as possible, how many bricks could the warehouse fit into the crate without exceeding the scale's limit? (calculator)

- A) 472 bricks
- B) 234 bricks
- C) 236 bricks
- D) 250 bricks

4) Gillian plans on getting a gym membership this summer. The gym she is currently interested in joining has an activation fee of \$50 and an additional subscription fee of \$30 per month. If Gillian only wants to spend \$1000 on her membership, what is the maximum amount of years and whole months Gillian can stay at the gym? (calculator)

- A) 1 year and 7 months
- B) 2 years and 2 months
- C) 3 years and 4 months
- D) 2 years and 7 months

5) A T-shirt company wants to produce an average of at least 200 shirts per week for 5 weeks. The first week they made 180 shirts, the second 160, the third 210, and the fourth 180. Which inequality can be used to find out how many shirts (x) the company would have to make on the 5th week to meet their goal? (no calculator)

- A) $\frac{180 + 160 + 210 + 180 + x}{5} \geq 200$
- B) $\frac{180 + 160 + 210 + 180 + x}{200} \geq x(200)$
- C) $\frac{200 + 5 + 160 + x}{x + 200} \geq 200$
- D) $\frac{180 + 160 + 210 + 180 + 200}{5} \geq x$

6) Tim starts a lemonade stand that sells cups of lemonade for \$1.50. To build the stand and buy the equipment, Tim spent \$30. He also spends around \$4 on ingredients every day. After how many whole cups of lemonade would Tim make a profit with his lemonade stand if he plans to operate for 5 days? (calculator)

- A) 33 cups
- B) 34 cups
- C) 35 cups
- D) 36 cups

7) Mike and Jamie both tutor kids over the summer. Mike charges \$20 plus \$4 for every hour spent tutoring, while Jamie charges \$15 plus \$6 for every hour spent tutoring. How many full hours would Jamie have to tutor to have a total charge greater than Mike? (no calculator)

- A) 1 hours
- B) 2 hours
- C) 3 hours
- D) 4 hours

8) A submarine sandwich restaurant bakes a batch of 50 subs of bread in store. Each sub must be no longer than 13 inches but no shorter than 10 inches. Which of the following inequalities represents the range of values for the total length, x , of all the subs baked? (no calculator)

- A) $500 \leq x \leq 650$
- B) $10 \leq x \leq 13$
- C) $200 \leq x \leq 540$
- D) $50 \leq x \leq 100$

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9) A large furnace was measured at around 400 degrees Fahrenheit at 1 PM. The temperature of the furnace increases by 220 degrees every hour but needs to be turned off before it reaches 1500 degrees to avoid problems. If this is the case, what is the latest time that the furnace can be shut off? (*no calculator*)

- A) 3 PM
- B) 4 PM
- C) 5 PM
- D) 6 PM

10) A national park plans on adding 7 new miles of hiking trails a year in an ongoing effort to increase recreational activities. If the county already has 568 miles of trail, what is the minimum number of full years required for the park to have 700 miles of hiking trails? (*calculator*)

- A) 13 years
- B) 15 years
- C) 17 years
- D) 19 years