

# LINEAR INEQUALITIES WORD PROBLEMS WORKSHEET

Solve the following word problems. Represent your solutions on a number line.

1. A group of students is selling special school-themed T-shirts to raise funds for their upcoming event. Each T-shirt costs \$8. The organizers want to ensure that they make at least \$200 from the sale of T-shirts. How many T-shirts must they sell to meet their goal?

2. A teenager has a phone plan that includes a monthly allowance of 300 text messages. Each additional text message beyond the allowance incurs a cost of \$0.05. The maximum amount the teenager wants to spend on text messages in a month is \$10. Write and solve an inequality to find out how many additional text messages the teenager can send without exceeding the budget.

3. A mother is 4 times as old as her daughter, but four times her daughter's age is less than 28. How old is the daughter?

4. A group of students are selling special pink cupcakes to raise funds for their school trip. Each cupcake costs \$1.25 to make. The organizers want to ensure that they make at least \$100 from the sale of cupcakes. How many pink cupcakes must they sell to meet their goal?

5. You are planning a trip to the movie theatre and managed to borrow \$35. If your ticket costs \$5, and snacks are \$2.50 each, how many snacks can you purchase without spending more than \$35?

6. You have a weekly grocery budget of \$50. After buying some essential items, you want to ensure you have at least \$15 left. Write and solve an inequality to find out how much money you can spend on additional groceries.

# ANSWERS

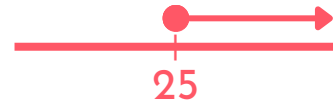
1. A group of students is selling special school-themed T-shirts to raise funds for their upcoming event. Each T-shirt costs \$8. The organizers want to ensure that they make at least \$200 from the sale of T-shirts. How many T-shirts must they sell to meet their goal?

Let  $t$  represent the number of t-shirts sold.

$$8t \geq 200$$

$$t \geq 25$$

Therefore, they must sell at least 25 t-shirts to earn \$200.



2. A teenager has a phone plan that includes a monthly allowance of 300 text messages. Each additional text message beyond the allowance incurs a cost of \$0.05. The maximum amount the teenager wants to spend on text messages in a month is \$10. Write and solve an inequality to find out how many additional text messages the teenager can send without exceeding the budget.

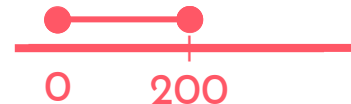
Let  $t$  represent the number of additional text messages beyond the allowance.

$$0.05t \leq 10$$

$$t \leq 200$$

Considering texts sent must be positive,  $0 \leq t \leq 200$ .

Therefore, the teenager can send at most 200 additional text messages without exceeding the budget of \$10.



3. A mother is 4 times as old as her daughter, but four times her daughter's age is less than 28. How old is the daughter?

Let  $d$  represent the daughter's age

$$4d < 28$$

$$d < 7$$

Considering that the daughter cannot be zero,  $0 < d < 7$ .

Therefore, the daughter must be in between 0 and 7.



# ANSWERS

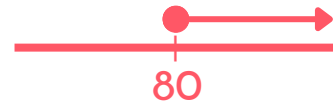
4. A group of students are selling special pink cupcakes to raise funds for their school trip. Each cupcake costs \$1.25 to make. The organizers want to ensure that they make at least \$100 from the sale of cupcakes. How many pink cupcakes must they sell to meet their goal?

Let  $p$  represent the number of cupcakes sold.

$$1.25p \geq 100$$

$$p \geq 80$$

Therefore, they must sell at least 80 cupcakes in order to make at least \$100.



5. You are planning a trip to the movie theatre and managed to borrow \$35. If your ticket costs \$5, and snacks are \$2.50 each, how many snacks can you purchase without spending more than \$35?

Let  $s$  represent the number of snacks purchased.

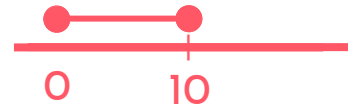
$$2.5s + 5 \leq 35$$

$$2.5s \leq 30$$

$$s \leq 10$$

Considering snacks purchased must be positive,  $0 \leq s \leq 10$ .

Therefore, you can purchase a maximum of 10 snacks.



6. You have a weekly grocery budget of \$50. After buying some essential items, you want to ensure you have at least \$15 left. Write and solve an inequality to find out how much money you can spend on additional groceries.

Let  $x$  represent the money spent on additional groceries.

$$x + 15 \leq 50$$

$$x \leq 35$$

Considering money spent must be positive,  $0 \leq x \leq 35$ .

Therefore, you can spend up to \$35.





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