

Define a variable and write an inequality to model each situation.

1. In many states, you must be at least 16 years old to obtain a driver's license.
2. It is not safe to use a light bulb of more than 60 watts in this light fixture.
3. The Navy's flying squad, the Blue Angels, makes more than 75 appearances each year.

Graph each inequality from the given description.

4. t is nonnegative
5. x is positive
6. k is no more than 3
7. r is at least 2
8. v is no less than 7

Use an inequality to model and solve the following problems

9. Your baseball team has a goal to collect at least 160 blankets for a shelter. Team members brought 42 blankets on Monday and 65 blankets on Wednesday. Write and solve an inequality to find out how many blankets the team must donate on Friday to make or exceed their goal?
10. Your brother has \$2000 saved for a vacation. His airplane ticket is \$637. Write and solve an inequality to find how much he can spend for everything else.

11. You have an allowance of \$15.00 per week. You are in a bowling league that costs \$6.50 each week, and you save at least \$5.00 each week. Write and solve an inequality to show how much you have left to spend each week.

12. A school club is selling reflectors for Bicycle Safety Day. Each member is encouraged to sell at least 50 reflectors. You sell 17 on Monday and 12 on Tuesday. How many reflectors do you need to sell on Wednesday to meet your goal?

13. The science club charges \$4.50 per car at their car wash. Write and solve an inequality to find how many cars they have to wash to earn at least \$300.

14. Suppose you earn \$6.15 per hour working part time at a dry cleaner. Write and solve an inequality to find how many full hours you must work to earn at least \$100.

15. Students in the school band are selling calendars. They earn \$0.40 on each calendar they sell. Their goal is to earn more than \$327. Write and solve an inequality to find the fewest number of calendars they can sell and still reach their goal.

16. An elevator can safely lift at most 4400 lbs. A concrete block has an average weight of 41 lbs. What is the maximum number of concrete blocks that the elevator can lift?

17. On a trip from Virginia to Florida, the Sampson family wants to travel at least 420 miles in 8 hours of driving. What must be their average rate of speed?

18. The sophomore class is planning a picnic. The cost of a permit to use a city park is \$250. To pay for the permit, there is a fee of \$0.75 for each sophomore and \$1.25 for each guest who is not a sophomore. Two hundred sophomores plan to attend. Write and solve an inequality to find how many guests must attend for the sophomores to pay for the permit.

19. The length of a rectangle is 6 inches more than the width. The perimeter of the rectangle can be no more than 48 inches. What is the maximum width?

20. A pipe is at least 21 feet long, and you want to cut it into three pieces. The second piece is to be twice as long as the first piece, and the third piece is to be 1 foot longer than the second piece. What is the minimum length of the first piece?

21. You know that a rope is no more than 100 feet long. You need to cut the rope into three pieces. the second piece is to be three times as long as the first piece, and the third piece must be 18 feet long. What is the maximum length of the second piece?
22. Your grades on tests 1, 2, and 4 are 82, 76, and 90. Unfortunately, you cut the third test and received a 0. If you have one test left to take, and if the passing grade for the course is 70, can you still pass the course?
23. A car rental agency rents cars for \$26.20 per day plus \$0.22 per mile driven. If your travel budget is \$200, what is the maximum number of miles you can drive during a 1-day rental?
24. Suppose that you are running a concession stand when a person gives you \$18 and asks for six soft drinks and as many hot dogs as the remaining money will buy. If soft drinks are \$1.00 and hot dogs are \$1.75, what is the maximum number of hot dogs the person can buy?
25. Suppose you have a gift certificate worth \$20 for one long-distance phone call. If the charge is \$1.10 for the first minute and \$0.42 for each additional minute, what is the longest that you can talk?