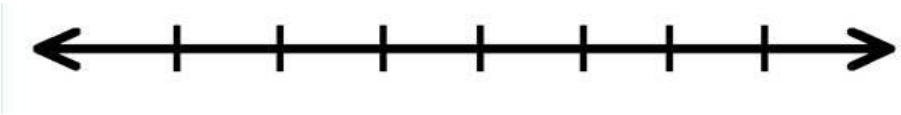
Inequalities on number line

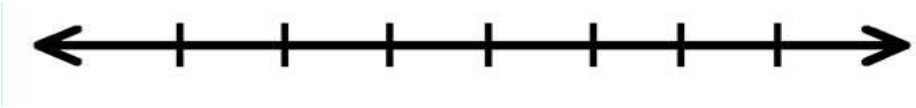
1) Mali empire of west Africa was known far and wide for the great wealth of its rulers. The empire fell in the year 1610.

   Let x represents any year. Write an inequality in terms of x and 1610 that is true only for values of x that represents after the Mali empire fell.



2) You have $20 to spend on taxi fare. The ride costs $5 plus $2.50 per kilometer.

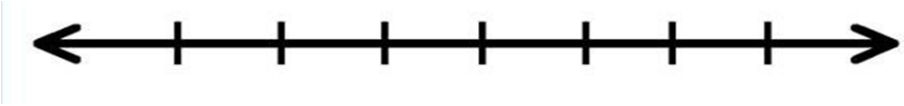
   Write the inequality to determine the distance in kilometers, d, you can ride for $20.



3) The latest online craze is a new game, 'Khan on seven'. You get 100 points for playing the game. In addition, you get 50 points for each seven-letter word you make with the ten letters you receive. Sam wants to break the record, and he needs 18,000 or more points to do so.

   Write an inequality to determine the number of seven-letter words, w, Sam could make to break the record.

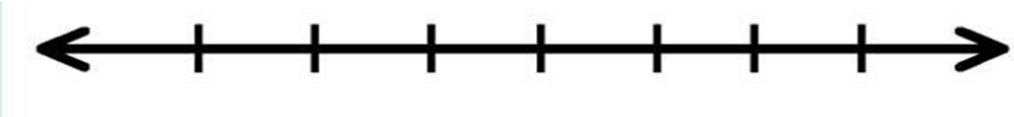
   Graph the solution set to this inequality.



4) The swimming pool is open when the temperature is higher than 20°C. Lainey tried to swim on Monday and Thursday (which was 3 days later). The pool was open on Monday, but it was closed on

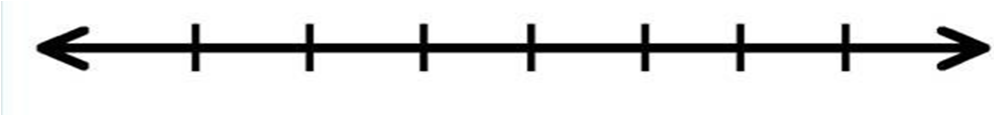
Thursday. The high temperature was 30°C on Monday, but decreased at a constant rate in the next 3 days.

Write an inequality to determine the rate of temperature decrease in degrees Celsius per day, d, from Monday to Thursday.

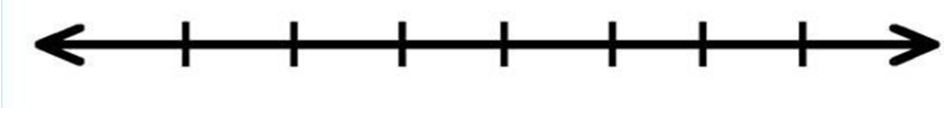


5) Kim's softball team was playing in the championship game. When there were 4 innings left, the team was losing by a score of 17 - 6 points. In the last 4 innings, her team scored the same number of points per inning, and the other team did not score any more points. Kim's team won with the most points.

   Write an inequality to determine the number of points per inning, p, Kim's team could have scored.



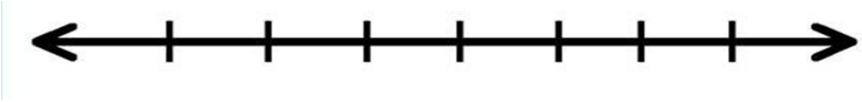
6) A popular 'R and B' brand recently returned from a successful 3-city tour, where they played to at least 120,000 people. If they had an audience of 45,000 in Mesa and another 33,000 in Denver, how many people attended their show in Las Vegas?



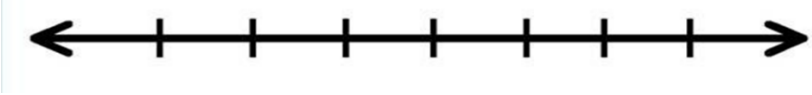
7) Keith has $500 in a savings account at the beginning of the summer. He wants to have at least $200 in the account by the end of the summer. He withdraws $25 each week for food, clothes, and movie tickets.

   - Write an inequality that represents Keith's situation.

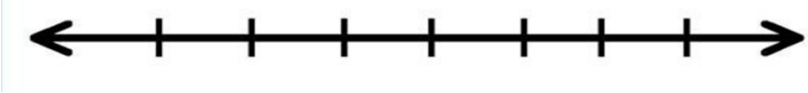
- How many weeks can Keith withdraw money from his account? Justify your answer.



8) Fred bought 3 shirts, each of the same price and received less than $12 change from a $50 bill. What is the maximum cost of 1 shirt?



9) Solve an inequality to find the length of a rectangle and to find the area of the rectangle. The width of the rectangle is 3 cm and the perimeter is at least 60 cm.



Answers

1. $x>1610$
2. $d\leq 6$
3. $n\geq 34$
4. $d\geq 3.3$
5. $r>2.75$
6. $x<42000$
7. $x\leq 12$
8. $x>16.66$
9. $l\geq 27$; $a\geq 81$