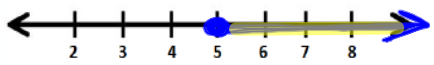
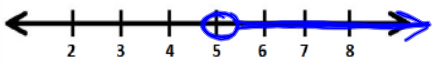
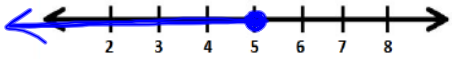
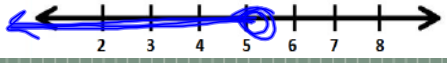
Lesson 34: Writing and Graphing Inequalities in Real-World Problems

Classwork

○ = # not included
● = include the #

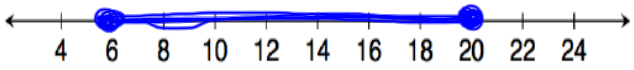
Example 1

Statement	Inequality	Graph
a. Caleb has at least $5.	$c \geq 5$	
b. Tarek has more than $5.	$t > 5$	
c. Vanessa has at most $5.	$V \leq 5$	
d. Li Chen has less than $5.	$L < 5$	

Mar 26-5:41 AM

Example 2

Kelly works for Quick Oil Change. If customers have to wait longer than 20 minutes for the oil change the company does not charge for the service. The fastest oil change that Kelly has ever done took 6 minutes. Show the possible customer wait times in which the company charges the customer.

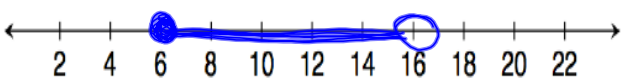


$6 \leq x \leq 20$

Example 3

Gurnaz has been mowing lawns to save money for a concert. Gurnaz will need to work for at least six hours to save enough money but he must work less than 16 hours this week. Write an inequality to represent this situation, and then graph the solution.

$6 \leq x < 16$

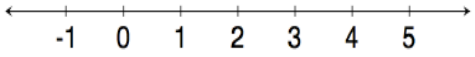


Mar 26-5:54 AM

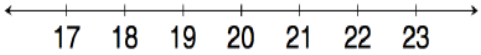
Exercises

Write an inequality to represent each situation. Then graph the solution.

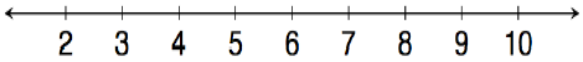
1. Blayton is at most 2 meters above sea level.



2. Edith must read for a minimum of 20 minutes.

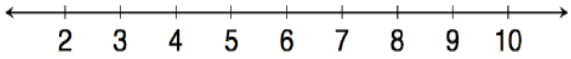


3. Travis milks his cows each morning. He has never gotten less than 3 gallons of milk however he always gets less than 9 gallons of milk.

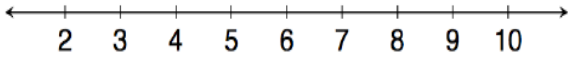


Mar 26-5:55 AM

4. Rita can make 8 cakes for a bakery each day. So far she has orders for more than 32 cakes. Right now, Rita needs more than four days to make all 32 cakes.

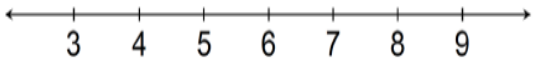


5. Rita must have all the orders placed right now done in 7 days or less. How will this change your inequality and your graph?



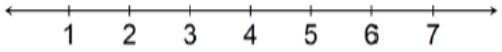
Extension

6. Kasey has been mowing lawns to save up money for a concert. He earns $15 per hour and needs at least $90 to go to the concert. How many hours should he mow?

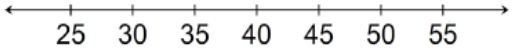


Mar 26-5:55 AM

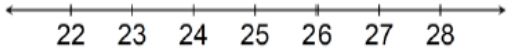
7. Rachel can make 8 cakes for a bakery each day. So far she has orders for more than 32 cakes. How many days will it take her to complete the orders?



8. Ranger saves $70 each week. He needs to save at least $2,800 to go on a trip to Europe. How many weeks will he need to save?



9. Clara has less than $75. She wants to buy 3 pairs of shoes. What price shoes can Clara afford if all the shoes are the same price?



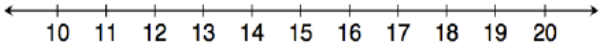
10. A gym charges $25 per month plus $4 extra to swim in the pool for an hour. If a member only has $45 to spend each month, at most how many hours can the member swim?

Mar 26-5:56 AM

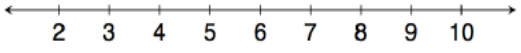
Problem Set

Write and graph an inequality for each problem.

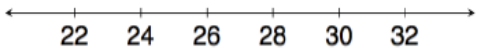
1. At least 13.



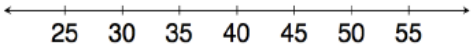
2. Less than 7.



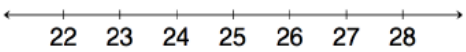
3. Chad will need at least 24 minutes to complete the 5K race. However, he wants to finish in under 30 minutes.



4. Eva saves $60 each week. Since she needs to save at least $2,400 to go on a trip to Europe, she will need to save for at least 40 weeks.



5. Clara has $100. She wants to buy 4 pairs of the same pants. Due to tax, Clara can afford pants that are less than $25.



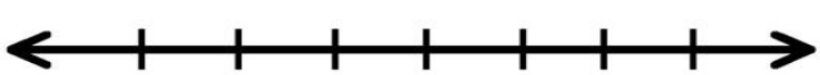
Mar 26-5:57 AM

6. A gym charges $30 per month plus $4 extra to swim in the pool for an hour. Because a member has just $50 to spend at the gym each month, the member can swim 5 hours at most.

Exit Ticket

For each question, write an inequality. Then graph your solution.

1. Keisha needs to make at least 28 costumes for the school play. Since she can make four costumes each week, Keisha plans on working on the costumes for at least 7 weeks.



2. If Keisha has to have the costumes complete in 10 weeks or less, how will our solution change?

Mar 26-5:57 AM

Mar 26-5:58 AM

Mar 26-5:58 AM

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