

Lesson 33: From Equations to Inequalities

Classwork

Example 1

What value(s) does the variable have to represent for the equation or inequality to result in a true number sentence?
What value(s) does the variable have to represent for the equation or inequality to result in a false number sentence?

a. $y + 6 = 16$

b. $y + 6 > 16$

c. $y + 6 \geq 16$

d. $3g = 15$

e. $3g < 15$

f. $3g \leq 15$

Example 2

Which of the following number(s), if any, make the equation or inequality true: $\{0, 3, 5, 8, 10, 14\}$?

a. $m + 4 = 12$

b. $m + 4 < 12$

c. $f - 4 = 2$

d. $f - 4 > 2$

e. $\frac{1}{2}h = 8$

f. $\frac{1}{2}h \geq 8$

Exercises 1–8

Choose the number(s), if any, that make the equation or inequality true from the following set of numbers: $\{0, 1, 5, 8, 11, 17\}$.

1. $m + 5 = 6$

2. $m + 5 \leq 6$

3. $5h = 40$

4. $5h > 40$

5. $\frac{1}{2}y = 5$

6. $\frac{1}{2}y \leq 5$

7. $k - 3 = 20$

8. $k - 3 > 20$

Problem Set

Choose the number(s), if any, that make the equation or inequality true from the following set of numbers: $\{0, 3, 4, 5, 9, 13, 18, 24\}$.

1. $h - 8 = 5$

2. $h - 8 < 5$

3. $4g = 36$

4. $4g \geq 36$

5. $\frac{1}{4}y = 7$

6. $\frac{1}{4}y > 7$

7. $m - 3 = 10$

8. $m - 3 \leq 10$

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

Problems

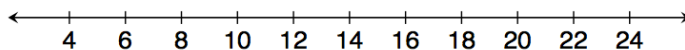
Classwork

Example 1

Statement	Inequality	Graph
a. Caleb has at least \$5.	_____	
b. Tarek has more than \$5.	_____	
c. Vanessa has at most \$5.	_____	
d. Li Chen has less than \$5.	_____	

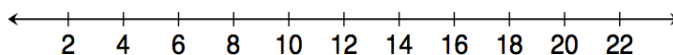
Example 2

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.



Example 3

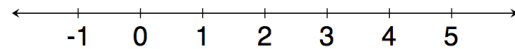
Gurnaz has been mowing lawns to save money for a concert. Gurnaz will need to work for at least six hours to save enough money, but he must work fewer than 16 hours this week. Write an inequality to represent this situation, and then graph the solution.



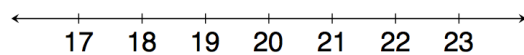
Exercises 1–5

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

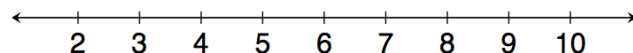
1. Blayton is at most 2 meters above sea level.



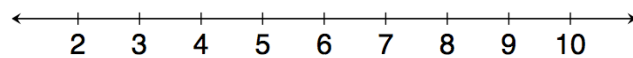
2. Edith must read for a minimum of 20 minutes.



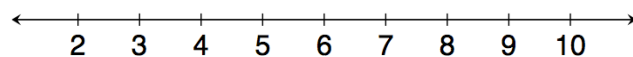
3. Travis milks his cows each morning. He has never gotten fewer than 3 gallons of milk; however, he always gets fewer than 9 gallons of milk.



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.

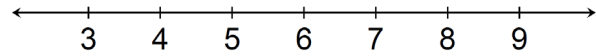


5. Rita must have all the orders placed right now done in 7 days or fewer. How will this change your inequality and your graph?

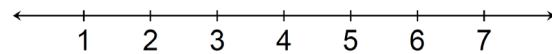


Possible Extension Exercises 6–10

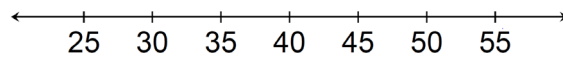
6. Kasey has been mowing lawns to save up money for a concert. He earns \$15 per hour and needs at least \$90 to go to the concert. How many hours should he mow?



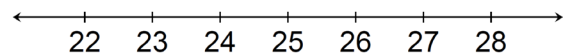
7. Rachel can make 8 cakes for a bakery each day. So far, she has orders for more than 32 cakes. How many days will it take her to complete the orders?



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?

