Write the inequality for each situation. **Name:** Key

1. A hot air balloon is at 3,210 ft and rising 6 feet each time they fire the burners. It needs to stay ıder 4000 ft to be safe. $3210 + 6x \leq 4000$

2. You eat 796 calories of candy but you burn off 47 cals each lap you take around your block. You need to eat at least 500 calories to maintain a healthy weight. $796 - 47x \geq 500$

3. Ms. Rowe gives $5 to charity every week. She starts has already given $425 to date. Her goal is to give away a minimum of $700. $425 + 5x \geq 700$

4. You pay $5 on lotto tickets and then you buy x ice cream cones for your friends at $2.50 each. You only have $15 with you. $5 + 2.50x \leq 15$

5. The temperature in a room is 70 degrees but it goes up 1 degree for each person at the party. It needs to stay under 80° or else the AC will turn on. $70 + 1x < 80$

6. A submarine is at -46 ft (below sea level) and sinking 13 ft each minute. It needs to be at least 200 feet deep in order to study giant squid. $-46 - 13x \leq 200$ (negs)

7. Pinocchio's nose gets 8cm longer for every lie he tells. It starts out at 25 cm. At 40 cm he won't fit into his car anymore. $25 + 8x < 40$

You spend $36 on all meals and $2 on each snack. You can't go over $50 for food on the whole vacation. $36 + 2x \leq 50$

$1.5 + x \geq 3\frac{1}{3}$

9. Chevy needs at least 3 1/3 cups of food per day. He has already eaten 1.5 cups today.

10. Admission is more than $12 per person. $x > 12$

11. The minimum points you can get on a project to pass is 30. You have 23 points now and you can earn 2 extra credit points for each bonus problem you do. $23 + 2x \geq 30$

12. A diver is at -85 feet and he goes deeper 5 feet per second. He needs to get below 150 feet down to see a blue whale. $-85 - 5x \leq -150$ (deeper)

13. The temperature is -18° and cooling down 4° each hour. It needs to be below -25° for them to cancel school. $-18 - 4x < -25$ (colder)

14. You have 90 m of fencing. You want to enclose a rectangular dog pen that has a width of (2x) and a length of (3x-4). Perimeter: $2x + 3x + 4 + 2x + 3x + 4 \rightarrow 10x + 8 \leq 90$

. Chevy has 18 stuffed animal friends but he destroys 1 each week. Mrs. Wallace will go shopping for more when he has no more than 5 left. $18 - 1x \leq 5$

16. You already spent \$8. You have \$25 in your pocket. How much more can you spend? $8 + x \leq 25$

25

17. You are baking a pot roast. The temperature is at 140° and needs to be above 160° to be safe to eat. $140 + x \geq 160$

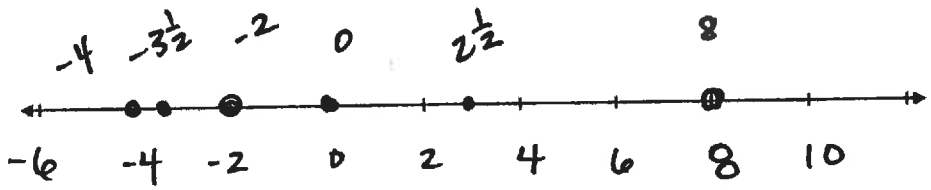
18. In order to try out for one of the parts in a play at the local theater, you must be at most 12 years old. $x \leq 12$

19. Total weight on the trampoline can not exceed 200 pounds. Your friend (85 pounds) is already on the trampoline. How much more weight can you add? $85 + x \leq 200$

20. You had 142 pieces of Halloween candy. How many pieces can you eat and still have over 50 pieces left for Christmas break? $142 - x > 50$

Plot and label each number on the same number line.

1. 8
2. −2
3. $2\frac{1}{2}$
4. $-3\frac{1}{2}$
5. 0
6. −4



Give the correct symbol for each phrase:

No more than $\leq$	at least $\geq$	minimum $\geq$	deeper (further from 0) (negs) $<$	higher $>$
At most $\leq$	no less than $\geq$	maximum $\leq$	shallower (negs) $>$	lower $<$
Not to exceed $\leq$	below $<$	above $>$	only $<$	fewer $<$

closer towards 0.

Tell whether the given value is a solution of the inequality.

14. $3h - 7 < h$; $h = 2$

$3(2) - 7 < 2$
$6 - 7 < 2$
$-1 < 2$
yes, a solution

15. $q + 8 \geq \frac{q}{4}$; $q = -12$

$-12 + 8 \geq \frac{-12}{4}$
$-4 \geq -3$
no (false)
not a solution

16. Consider the inequalities $-2x < 10$ and $-6 < -2x$.

a. Is $x = 0$ a solution to both inequalities? yes.

$-2(0) < 10$
$0 < 10$ yes

$-6 < -2(0)$
$-6 < 0$ yes

b. Is $x = 4$ a solution to both inequalities? no

$-2(4) < 10$
$-8 < 10$
yes.

$-6 < -2(4)$
$-6 < -8$ no

c. Find another value of x that is a solution to both inequalities.

1 or 2 would work.

Name Key Date

4.1

What Do You Call A Bull That's Sleeping?

Show all work for credit!!

Write the letter of each answer in the box containing the exercise number.

Write the word sentence as an inequality.

1. A number x is greater than 25.8.
2. Twice a number x is at most $-\frac{3}{5}$.
3. A number x minus 9.3 is more than 4.6.
4. A number x added to 11.7 is less than 14.

Tell whether the given value is a solution of the inequality.

5. $x - 3.6 \le 2.8;\ x = 6.7$
6. $\frac{5}{6}x > -10;\ x = -6$

Match each inequality with its graph.

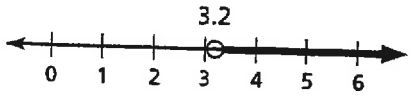
7. $x \le -7$
8. $x > 3.2$
9. $x < 3\frac{1}{4}$
10. $x \ge -11$

Answers

U. $11.7 + x < 14$

L. $x > 25.8$

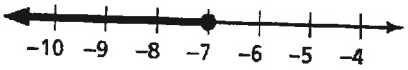
A.



D. yes

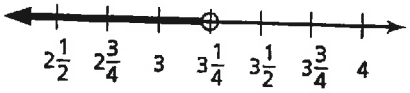
E. $2x \le -\frac{3}{5}$

R.



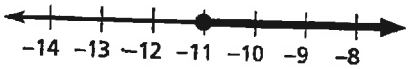
L. $x - 9.3 > 4.6$

Z.



B. no

O.



8		5	4	1	3	6	10	9	2	7
A		B	U	L	L	D	O	Z	E	R

* Must include units!

9. To stay within your budget, the area of the house and the garage combined is at most 3000 square feet. The area of the garage is 528 square feet. Write and solve an inequality that represents the area of the house.

$528 + x \le 3000$
$-528 \quad -528$
$x \le 2472\ ft^2$

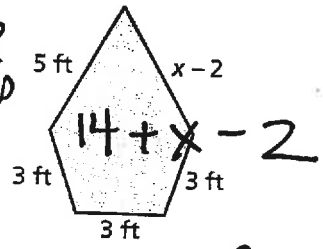
10. You have $137.26 in a bank account. The bank requires you to have at least $50 in your account or else you are charged a fee. Write and solve an inequality that represents the amount you can withdraw (spend) without being charged a fee.

$137.26 - x \ge 50$
$-137.26 \quad -137.26$
$-x \ge -87.26$
$-1 \quad -1$
$x \le \$87.26$

*This is covered in next section.

11. The perimeter for the shape at the right is at least 18 feet. Write an inequality and solve for x.

add up sides



$14 + x - 2$

$12 + x \ge 18$

$x \ge 6$

Name Keef 2016 Date _____ **4.2**

Did You Hear About The...

A The	B baseball	C game	D between	E the	F Collars
G and	H the	I shirts	J that	K ended	L in
M a	N tie.				

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

$x \geq -3$ GAME	$x \geq 2\frac{2}{3}$ THE
$x \leq \frac{2}{3}$ IN	$x > 10$ BASEBALL
$x \leq -6$ AND	$x < \frac{1}{2}$ ENDED
$x \leq 16$ TIE	$x \geq 1.1$ WHICH
$x \geq 15$ THE	$x > 1$ MITT
$x < -5$ CATCHER	$x \geq -9$ THE
$x < 3$ COLLARS	$x \leq 2$ SOCKS
$x > 2.8$ THAT	$x < -1.2$ A
$x \leq \frac{2}{5}$ SHIRTS	$x \leq -5$ BETWEEN

Solve the inequality.

A. $x + 5 \geq 20$

B. $x - 4 > 6$

C. $6 \leq 9 + x$

D. $3 + x \leq -2$

E. $-17 \leq x - 8$

F. $x - 1 < 2$

G. $x - 10 \leq -16$

H. $x + \frac{1}{3} \geq 3$

I. $\frac{3}{5} \geq x + \frac{1}{5}$

J. $-4.4 < x - 7.2$

K. $\frac{11}{4} > x + \frac{9}{4}$

L. $-\frac{5}{12} \geq x - \frac{13}{12}$

M. $x + 0.4 < -0.8$

N. To play on the football team, a seventh grader must weigh no more than 110 pounds. Your neighbor is in seventh grade and weighs 94 pounds. Write and solve an inequality that represents how much weight your neighbor can gain and still meet the requirement.

9. You and two friends are diving for lobster. The maximum number of lobsters you may have on your boat is 18. You currently have 7 lobsters. Write and solve an inequality that represents the additional lobsters that you may catch.

3 people

$7 + x \leq 18$
$-7 \quad -7$
$x \leq 9$ lobsters

b. Another friend comes on your boat and he has 3 lobsters. You may now have 24 lobsters on your boat. Write and solve an inequality that represents the additional lobsters that you may catch.

4 people

$10 + x \leq 24$
$-10 \quad -10$
$x \leq 14$ lobsters

c. How many lobsters is each person allowed to catch? 6 lobsters each.