Warm UP
Check HW Answers

my.hrw.com/math14/ga/msm/teacher/osp/g7/data/unit02/mod06/lesson03/exploration_core_lesson.pdf - Google Chrome

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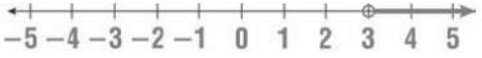
Additional Practice

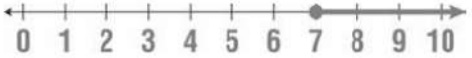
1. $x < 5$

2. $r \geq 12$

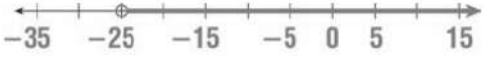
3. $n > 3$



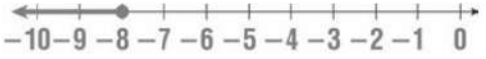
4. $z \geq 7$



5. $w > -25$



6. $u \leq -8$



7. $d < -3$

8. $g \leq 4$

9. $b > 1$

10. $a > -20$

11. $c \leq 48$

12. $p \leq -18$

13. On average, each student should raise at least $25.

Circle the ones you want to go over.

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11/10/2014

PRACTICE

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Solve each inequality. Round to the nearest hundredth, if necessary.

1. $10x + 4 \geq -6$

2. $-3x - 21 > 16$

3. $\frac{x}{2} + 1 \geq 4\frac{1}{2}$

4. $\frac{x}{-5} + 11 < 15$

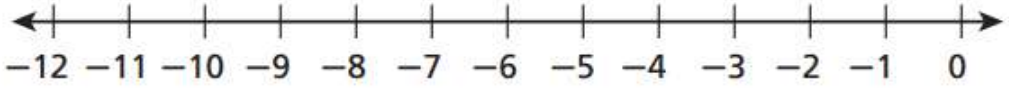
5. $1.5x - 2 \leq 16$

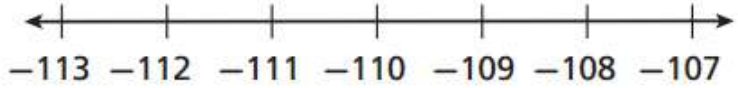
6. $0.2 > -1.2x - 5.1$

Solve each inequality. Then graph the solution set.

7. $-5x - 17 \leq 38$

8. $42 < -\frac{y}{9} + 30$





9. Dominique has \$5.00. Bagels cost \$0.60 each and a small container of cream cheese costs \$1.50

Pair of jeans	30
Jacket	50

11. Alex wants to buy a jacket, 2 long-sleeve shirts, and some short-sleeve shirts. Can she buy at least 8 short-sleeve shirts? Explain.

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Solve each inequality.

12. $6(v - 4) < 12$

13. $-2(t + 5) \geq 10$

14. $7x - 4x + 9 > 18$

15. $3m + 7m - 0.8 \leq 9.2$

16. $8g + 4 < 5g + 22$

17. $c + 8 > 5c - 28$

Solve each inequality, and explain what the solution set means in the context of the situation.

18. Renting a tent from a camping store costs \$15 for the first day and \$5 for each additio
Nell wants to spend no more than \$30 to rent a tent. The inequality $15 + 5(d - 1) \leq 30$

Word Problems with Inequalities

Don't panic! Remember to:

- Read the questions carefully.
- Define the variable.
- Write an inequality.
- Solve the inequality.
- Check that your answer is reasonable.
- Answer in a complete sentence.

Inequality Key Words

- at least - means greater than or equal to
- At most –means less than or equal to
- no more than - means less than or equal to
- more than - means greater than
- less than - means less than
- Between -means compound inequality with and
- Inclusive -means “make the or equal to line”

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.**

Step 1: Highlight the important information in this problem.
** At least is the key word that notes that this problem must be written as an inequality.

Step 2: Identify your variable. What don't you know? The question verifies that you don't know how many weeks.

Let w = number of weeks.

Step 3: Write your inequality.

$500 - 25w \geq 200$

I know you are saying "How did you get that?"

500	-	25 w	$\geq$	200
Started with 500 at the beginning of the summer	with-draws	25 each week	at least	end of summer amount

I know the "at least" part is tricky. You would probably think that is supposed to be less than. But… he wants the amount in his account to be "at least" 200, which means 200 or greater! So we must use the greater than or equal to symbol.

Step 4: Solve the inequality.

$500 - 25w \geq 200$

$500 - 500 - 25w \geq 200 - 500$ Subtract 500 from both sides.

$\frac{-25w}{-25} \geq \frac{-300}{-25}$ Divide by -25

$w \leq 12$ Reverse your sign since you divided by a negative number.

The number of weeks that Keith can withdraw money from his account is 12 or less.

Step 5: Justify (prove your answer mathematically)

I'm going to prove the largest number of weeks that it could be which is 12.

$500 - 25w \geq 200$
$500 - 25(12) \geq 200$
$500 - 300 \geq 200$
$200 \geq 200$ ☺

Since 200 is equal to 200, my answer is correct. Any more than 12 weeks and his account balance would be less than $200. Any number of weeks less than 12 and his account would stay above $200.

Example 1

Eight less than the product of -3 and a number is greater than -26. *Write and solve an inequality to represent this relationship. Graph the solution set, and check your answer.*

Let x = the number

$-3x - 8 > -26$

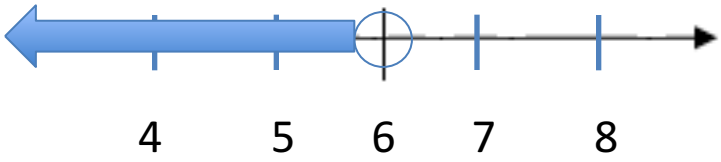
$+8 \quad +8$

$-3x > -18$

$-3 \quad -3$

$x < 6$

Don't forget to reverse the inequality sign when dividing by a negative!



CHECK @ x = 5

$-2x - 6 > -18$

$-2(5) - 6 > -18$

$-10 - 6 > -18$

$-16 > -18$

Example 3

Connor went to the carnival with $22.50. He bought a hot dog and a drink for $3.75, and he wanted to spend the rest of his money on ride tickets which cost $1.25 each. What is the maximum number of ride tickets that he can buy?

Let r = the number of ride tickets he can buy

cost of food + cost of rides ≤ $22.50

$$3.75 + 1.25r \leq 22.50$$
$$-3.75 \qquad -3.75$$
$$1.25r \leq 18.75$$
$$\frac{1.25}{1.25} \qquad \frac{18.75}{1.25}$$
$$r \leq 15 \text{ tickets}$$

Connor can buy a maximum of 15 ride tickets.

Example 4

Stan earned $7.55 per hour plus an additional $100 in tips waiting tables on Saturday evening. He earned $160 in all. To the nearest hour, what is the least number of hours Stan would have to work to earn this much money?

Let h = the number of hours Stan will have to work

tips + hourly wages $\geq$ $160

$$100 + 7.55h \geq 160$$
$$-100 \qquad -100$$
$$7.55h \geq 60$$
$$\frac{7.55h}{7.55} \geq \frac{60}{7.55}$$
$$x \geq 7.9 \text{ hours}$$

To the nearest hour, Stan would have to work at least 8 hours to earn $160.

Example 5

Brenda has $500 in her bank account. Every week, she **withdraws** $40 for expenses. Without making any deposits, how many weeks can she withdraw this money if she wants to maintain a balance of at least $200?

Let w = the number of weeks Brenda withdraws money

starting account balance – money withdrawn ≥ $200

$$\begin{array}{rcl} 500 - 40w & \geq & 200 \\ -500 & & -500 \\ \hline -40w & \geq & -300 \\ \hline -40 & & -40 \end{array}$$

$$w \leq 7.5 \text{ weeks}$$

Don't forget to reverse the inequality sign when dividing by a negative!

Brenda can withdraw $40 from the account for 7 full weeks and still have at least $200 in the account.

7. $-5x - 17 \leq 38$

8. $42 < -\frac{x}{9} + 30$

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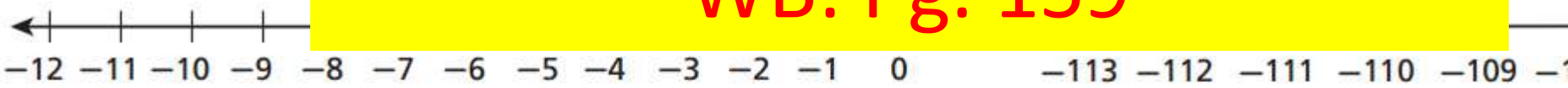
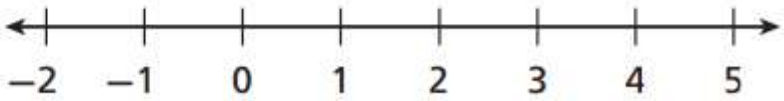


9. Dominique has \$5.00. Bagels cost \$0.60 each and a small container of cream cheese costs \$1.50.

a. How many bagels can Dominique buy if she also buys one small container of cream cheese? Explain your answer.

b. Graph the solution set.



Class work/Homework

Workbook Pg. 162

Choose 4