Name: _____ Date: _____

Grade 7 Math

Winter Break Packet

December 21nd, 2019 – January 1st, 2020

Homework is 10% of your grade. Please follow these directions to earn full credit ☺

- Complete the page for each day of the week
- Show all work and complete every problem
- Put a circle around any problem you found difficult
- If you cannot complete a problem, write an explanation about what was confusing about that problem, to still receive credit (in a complete sentence).
- Hand in to your math teacher on January 2, 2020

Pre-Algebra

Name_____ ID: 1

Assignment

Date_____ Period____

Evaluate each expression.

1) $\left(-\frac{15}{8}\right)+\left(-\frac{3}{8}\right)$

2) $\frac{1}{2}+\left(-2\frac{1}{3}\right)$

3) $\left(-\frac{3}{2}\right)+1\frac{6}{7}$

4) $2\frac{1}{2}+\left(-1\frac{3}{8}\right)$

5) $1\frac{1}{5}-\left(-1\frac{1}{3}\right)$

6) $(-1)+\frac{7}{6}$

7) $\frac{1}{5}-1\frac{5}{8}$

8) $(-1)+\frac{2}{7}$

9) $2\frac{1}{6}-\frac{4}{5}$

10) $1\frac{1}{8}-4\frac{1}{2}$

11) $\frac{1}{2}+\frac{2}{7}$

12) $2-\frac{3}{5}$

13) $\frac{9}{7}+\frac{1}{3}$

14) $\frac{10}{7}-\frac{6}{7}$

15) $2+\frac{2}{3}$

16) $2+\frac{8}{7}$

17) $2-\frac{5}{3}$

18) $6+\frac{3}{2}$

19) $1+\frac{12}{7}$

20) $\frac{6}{7}+\frac{1}{4}$

21) $4\frac{1}{2} - \frac{3}{8}$

22) $4\frac{1}{5} + 3\frac{1}{8}$

23) $3\frac{3}{4} + 2\frac{5}{6}$

24) $\frac{5}{6} + 4\frac{1}{3}$

25) $4\frac{5}{6} + 2\frac{3}{4}$

26) $3\frac{2}{7} + 1\frac{1}{4}$

27) $3\frac{3}{5} + 3\frac{1}{7}$

28) $4\frac{3}{8} + 1\frac{1}{2}$

29) $1\frac{1}{2} + \frac{1}{5}$

30) $\frac{1}{7} + \frac{3}{4}$

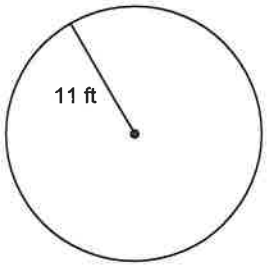
Basic Pre-algebra Skill

Finding the Circumference of a Circle

$C = 2\pi r$ or $C = \pi d$

Find the circumference of each circle. Round to the nearest tenth.

1)



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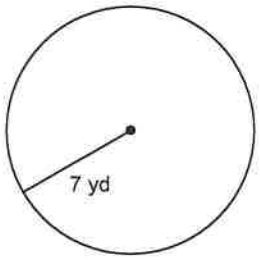

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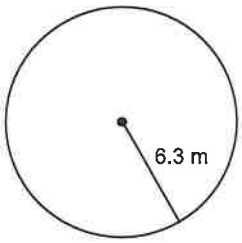

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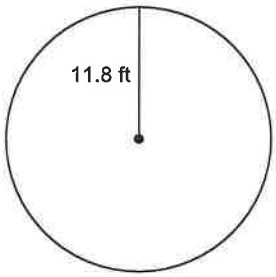

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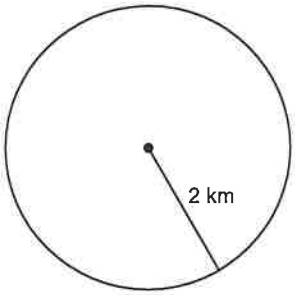

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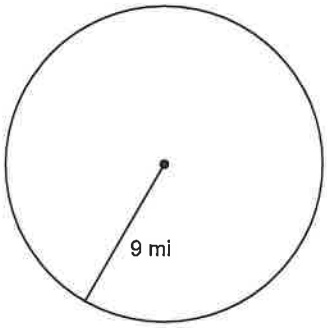

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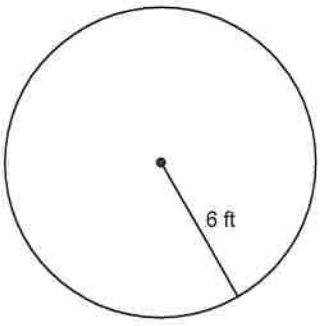

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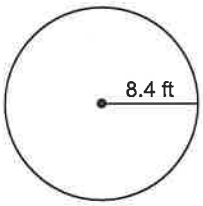

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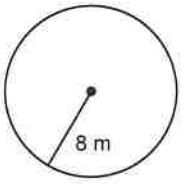

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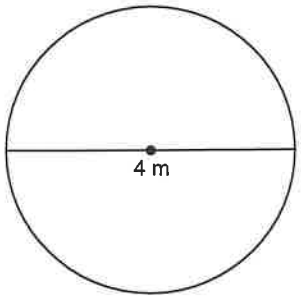

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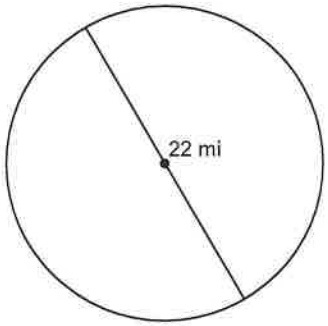

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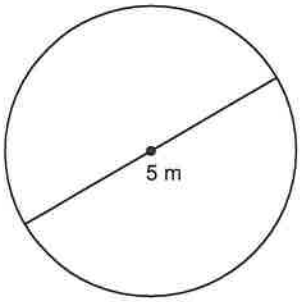

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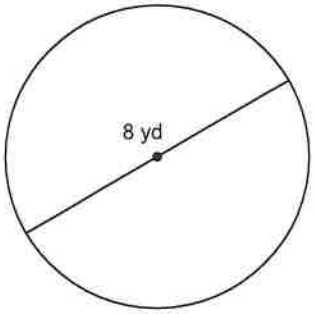

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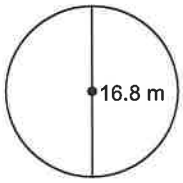

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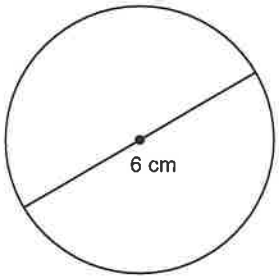

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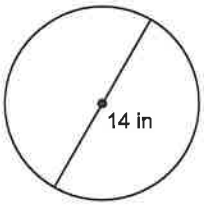

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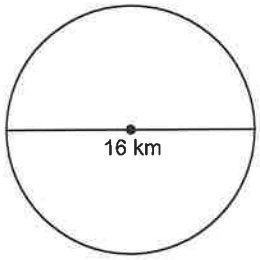

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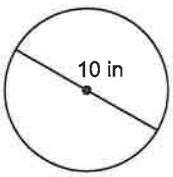

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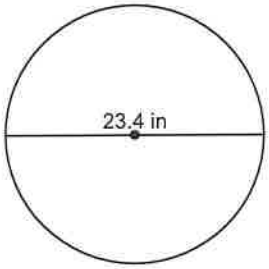


Simplify each expression:

45) $p - 10 - 7p$

46) $9a - 2 + 3$

47) $-5v + 3v$

48) $x + 1 + 3$

49) $1 - 10m + 5m$

50) $1 - 5p - 9p - 7$

Find each quotient.

51) $\frac{1}{4} \div \frac{8}{5}$

52) $1 \div \frac{3}{2}$

53) $\frac{11}{7} \div \frac{1}{4}$

54) $\frac{4}{3} \div \frac{1}{3}$

55) $\frac{6}{7} \div \frac{5}{8}$

56) $8 \div \frac{4}{5}$

57) $\frac{1}{7} \div \frac{1}{2}$

58) $\frac{3}{7} \div \frac{4}{5}$

59) $\frac{10}{7} \div \frac{3}{2}$

60) $\frac{1}{2} \div \frac{5}{6}$

61) $2\frac{2}{3} \div 4\frac{1}{2}$

62) $2\frac{2}{5} \div 2\frac{1}{2}$

63) $4\frac{2}{7} \div 2\frac{1}{6}$

64) $3\frac{3}{8} \div 2\frac{1}{4}$

65) $2\frac{5}{7} \div 3\frac{7}{8}$

66) $3 \div 2\frac{1}{2}$

67) $3\frac{7}{8} \div 5\frac{1}{4}$

68) $\frac{1}{7} \div 1\frac{1}{8}$

69) $1\frac{1}{3} \div 4\frac{1}{2}$

70) $1\frac{5}{7} \div \frac{3}{4}$

Solve each equation.

71) $n + 10 = 18$

72) $v + 3 = -4$

73) $\frac{a}{3} = -\frac{7}{3}$

74) $n - 6 = 4$

75) $a - 5 = -11$

76) $4 + n = 0$

77) $\frac{x}{3} = 4$

78) $\frac{m}{2} = \frac{3}{2}$

79) $r + 3 = 7$

80) $x + 8 = 9$

Evaluate each using the values given.

81) $p(p + q)$; use $p = 3$, and $q = 1$

82) $b + a \div 6$; use $a = 6$, and $b = 4$

83) $z - (y - y)$; use $y = 1$, and $z = 3$

84) $h + 5 - j$; use $h = 6$, and $j = 2$

85) $p - (6 - q)$; use $p = 2$, and $q = 6$

86) $h + j^2$; use $h = 1$, and $j = 5$

87) $y(3 - x)$; use $x = 1$, and $y = 5$

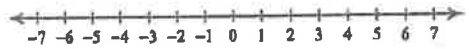
88) $2p - q$; use $p = 3$, and $q = 2$

89) $h - (h - j)$; use $h = 6$, and $j = 1$

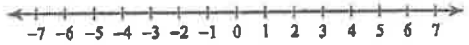
90) $4 + x + y$; use $x = 4$, and $y = 5$

Draw a graph for each inequality.

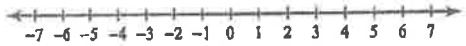
91) $x < -2$



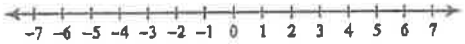
92) $n < 6$



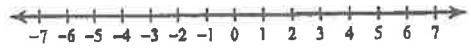
93) $m > -3$



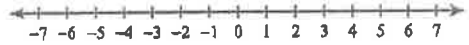
94) $n > -6$



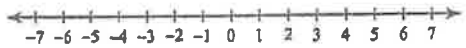
95) $x \leq -4$



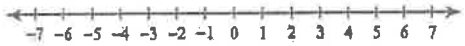
96) $p < -1$



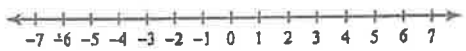
97) $v \geq -1$



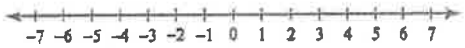
98) $n > -1$



99) $a > 4$



100) $n > -2$



Kuta Software - Infinite Algebra 2

Name_____

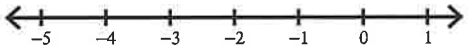
Solving Inequalities

Date_____ Period____

Solve each inequality and graph its solution.

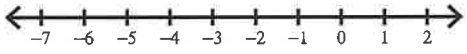
1) $0 > 3x - 3 - 6$

2) $4x + 1 - 1 \geq -8$

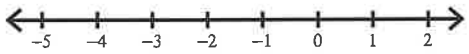


3) $-1 \leq 2n + 4 - 5$

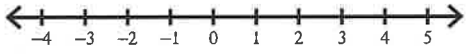
4) $-6 > 5n + 5 + 4$



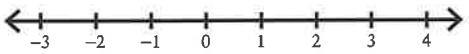
5) $0 \leq 2n + 3n$



6) $2p - 4p \leq -2$



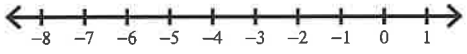
7) $7 < -(-k - 3) + 2$



8) $3 - 2(n - 4) > -1$

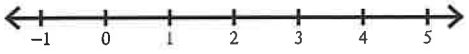
9) $-5(1 - 4a) > -5$

10) $-2(b + 1) + 4 < 10$

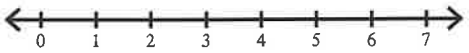


11) $a - 15 > -4(-6 + 3a)$

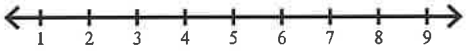
12) $3(6b - 1) > 18 - 3b$



13) $26 + m \geq 5(-6 + 3m)$

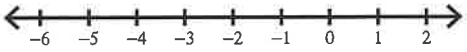


14) $20 - 2p > -2(p + 2) + 4p$



15) $x + 1 + 1 + 6x > 3(x - 4) - (x - 4)$

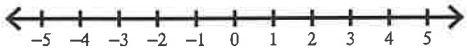
16) $-6(1 + 6x) < 6(1 - 5x)$



17) $2(1 - 4r) < -2(r + 3) - 4$

18) $-6(1 + 2x) \geq 6(2x - 1) + 2x$

19) $-2(1 - 5x) > -(x + 1) - 1$



20) $5x - (x + 2) > -5(1 + x) + 3$

Critical thinking questions:

21) Write an inequality with x on both sides whose solution is $x \geq 2$

22) Name one particular solution to question #20.

Pre-Algebra Name _____ ID: 1

Writing Variable Equations from Word Problems

Date _____ Period ____

1) The Cooking Club made some pies to sell during lunch to raise money for a field trip. The cafeteria helped by donating three pies to the club. Each pie was then cut into six pieces and sold. There were a total of 72 pieces to sell. How many pies did the club make?

2) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

3) Ming won 121 lollipops playing basketball at her school's game night. Later, she gave four to each of her friends. She only has 9 remaining. How many friends does she have?

4) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

5) You bought a magazine for $3 and some candy bars for $2 each. You spent a total of $19. How many candy bars did you buy?

6) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

7) Eugene had $24 to spend on three pencils. After buying them he had $18. How much did each pencil cost?

8) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

9) Abhasra spent half of her weekly allowance at the movies. To earn more money her parents let her clean the windows in the house for $7. What is her weekly allowance if she ended with $12?

10) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

11) The sum of three consecutive odd numbers is 39. What is the smallest of these numbers?

12) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

13) The Cooking Club made some pies to sell at a basketball game to raise money for the new math books. The cafeteria contributed three pies to the sale. Each pie was then cut into five pieces and sold. There were a total of 40 pieces to sell. How many pies did the club make?

14) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

15) Stephanie spent half of her weekly allowance playing arcade games. To earn more money her parents let her clean the oven for $7. What is her weekly allowance if she ended with $12?

16) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

17) How old am I if 500 reduced by 3 times my age is 206?

18) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

19) You had $23 to spend on four avocados. After buying them you had $11. How much did each avocado cost?

20) x = _____

Equation: _____

Work to solve equation

Answer in sentence _____

_____

Name:_____ Date:____/____/_____

STUDY GUIDE/ PRACTICE

Unit 5 Test, "Inequalities"

Note: *Many problems in this packet will be completed together in class during review time. Students are not expected to complete every single problem in the packet. They should complete the "starred" problems on each page-- in addition to studying the notes and past quizzes– in order to be fully prepared for test.*

Topics:

Writing Inequalities for Real Life Situations (Word Problems)

Graphing Inequalities

Solving One-Step Inequalities

Unit 5 IXL Skills:

U.1
U.3
U.4
U.5

On the back of this cover page is the Unit 5 "Quick Guide" – for your reference.

Unit 5, "Inequalities" Quick Guide

Expression

$x + 5$

Equation

$x + 5 = 8$

1 answer

Inequality

$x + 5 < 8$

MANY answers!!

Solving an Inequality

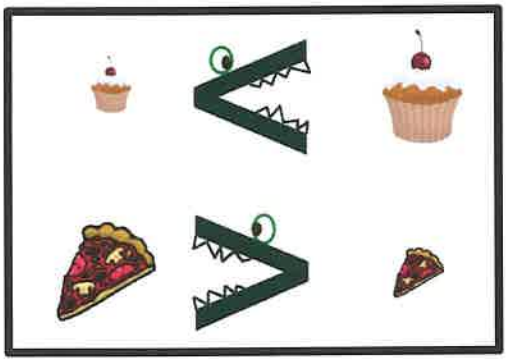
GOAL: Isolate the variable (get "x" by itself)

Example:

$$x + 3 > 8$$
$$-3 \quad -3$$
$$x > 5$$

Meaning:

The answer is NOT 5!! It is ALL numbers BIGGER than 5!



When multiplying or dividing by a negative #, we switch the inequality sign!

Example:

$$\frac{-3x}{-3} > \frac{15}{-3} \quad \text{-- Switch Sign!}$$
$$x < -5$$

> sign becomes a < sign

Does the bird get the worm?!?

If the bird **"gets the worm,"** his belly is full, so we use a **CLOSED** circle ($\geq$ **or** $\leq$).

If the bird does **NOT** get the worm, his belly is empty, so we use an **OPEN** circle ($>$ **or** $<$).

Inequalities:

$>$ ○⟶

$<$ ⟵○

$\geq$ ●⟶

$\leq$ ⟵●

GOLDEN RULE OF ALGEBRA

What you do to one side of an equation, you MUST do to the other side!!

Write an inequality for the following real-life situations:

1) Kids 12 and under get a discount at Golden Corral. If x represents age, write an inequality for those who do NOT get a discount.	2) Harriet's goal is to weigh no more than 140 lbs. If x represents weight, write an inequality that describes her goal weight.
3) In Virginia, kids must be at least sixteen years old in order to get their driver's license. If x represents age, write an inequality for those who are able to get their license.	4) Amazon is offering free shipping on orders totaling at least $100. If x represents money spent, write an inequality for those who will receive free shipping.
5) Students may receive no more than 3 tardies in order to avoid lunch detention. If x represents # of tardies, write an inequality for those students who WILL receive lunch detention.	6) In Jack's monthly budget, he has allowed for a maximum of $200 per month for "fun" money (restaurants, movies, etc.). If x represents money spent, write an inequality for the amount of "fun" money Jack can spend this month.

Matching:

7) ____ $x \geq 2$

8) ____ $x > 2$

9) ____ $x \leq -5$

10) ____ $x \leq 5$

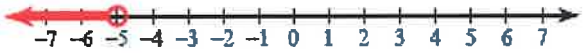
11) ____ $x \leq -2$

12) ____ $x < -5$

13) ____ $x > 5$

14) ____ $x < 1$

A



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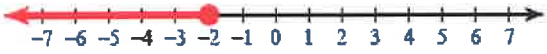

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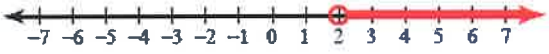

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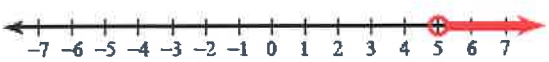
G

H



Re-write the following inequalities, placing x on the left side of the inequality (do NOT need to solve):

15) $3 > x + 2$	16) $8 < \frac{x}{3}$
17) $-16 \geq 4x$	18) $-15 \leq x + (-5)$

Do we need to switch the sign? Write "yes" or "no" in the blanks:

19) _____ $-6 + y < 3$

20) _____ $y - 4 > 3$

21) _____ $-2x > 13$

22) _____ $-3x \leq 30$

23) _____ $3y \leq -12$

24) _____ $-x < 5$

25) _____ $\frac{x}{-2} < x$

26) _____ $y + -2 > -3$

When multiplying or dividing by a negative #, SWITCH the sign!

Solve and graph the following (switch sign when needed):

27) $x + 8 > 2$	28) $-2 + x < 5$	29) $-6x \geq 36$
30) $35 > 5x$	31) $\frac{x}{-2} \leq 3$	32) $20 < 16 + x$
33) $\frac{x}{4} > 2$	34) $-48 < -12x$	35) $x + 40 \geq 45$

Solve and circle all possible solutions to the inequality:

36) $5y > 10$

2	0	8	5	2.5	1

37) $-3x \geq 21$

-12	-6.5	0	-7	-4	-7.5

38) $\frac{y}{-2} > 5$

-11	10	5	-10	-14	1

39) $1 \leq x + 9$

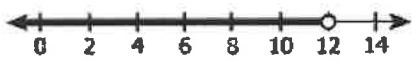
-10	-8	0	-8.5	-7.5	4

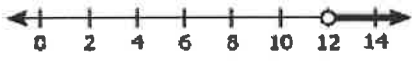
Multiple Choice:

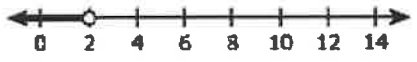
40)	Which value of "x" makes the following true? **$-5 > x + 10$**	A. -16 B. -15 C. -14 D. -5
41)	Which is the solution to the following inequality? **$12 \leq -2x$**	A. $x \geq -6$ B. $x \leq -6$ C. $x \geq 14$ D. $x \geq 6$
42)	Which value of "x" makes the following true? **$4x < 20$**	A. 6 B. 5 C. 4 D. 7

43) Which graph represents the solution set to this inequality?

$x - 5 > 7$

A 

B 

C 

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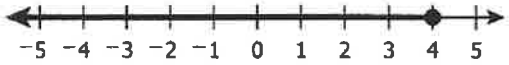
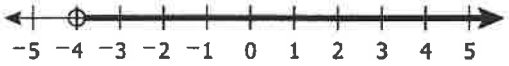
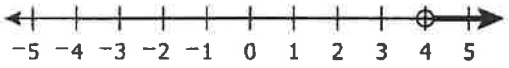
44) Which is the graph of the solution to the following?

$4y \geq -16$

A 

B 

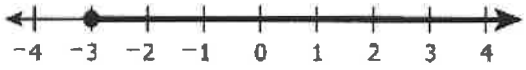
C 

D 

45) Which graph represents the solution set to this inequality?

$-5x > 15$

A 

B 

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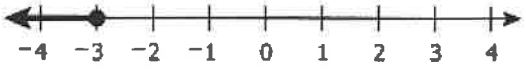
D 

46) **Select all of the characteristics of the graph for $-x \leq -9$.**

Circle is open	Circle is closed	Graph shaded to the right of the circle	Graph shaded to the left of the circle

NAME _____ DATE _____ PERIOD_____

TWO STEP INEQUALITY WORD PROBLEMS

1. Daniel had $25 to spend at the fair. If the admission to the fair is $4 and the rides cost $1.50 each, what is the greatest number of rides Daniel can go on?

A. Write an inequality that represents Daniel's situation.

B. How many rides can Daniel go on?. Justify your answer.

C. Graph the solutions on a number line.

2. The seventh grade class is putting on a variety show to raise money. It cost $700 to rent the banquet hall that they are going to use. If they charge $15 for each ticket, how many tickets do they need to sell in order to raise at least $1000?

A. Write an inequality that represents the situation.

B. How many tickets do they need to sell? Justify your answer.

C. Graph the solution on a number line.

3. Kevin has $25. MP3 downloads cost $0.75 each. How many songs can he download and still have $13 left to spend?

A. Write an inequality that represents Kevin's situation.

B. How many downloads can Kevin purchase? Justify your answer.

C. Graph the solution on a number line.

4. Triniti had $500 in a saving account at the beginning of the summer. She wants to have at least $200 in the account by the end of the summer. She withdraws $25 each week for food, clothes, and movie tickets.

A. Write an inequality that represents Triniti's situation.

B. How many weeks can Triniti withdraw money from her account. Justify your answer.

C. Graph the solution on a number line.