

Algebra 9:

April 6 - 9

Time Allotment: 40 minutes per day

Student Name: _____

Teacher Name: Mrs. Hudson

Melanie.Hudson@GreatHeartsNorthernOaks.org

Zoom Office Hours: 10:00-10:50 am on Monday and
Wednesdays starting on Monday April 6th

Chapter 10: Inequalities

Packet Overview

Date	Objective(s)	Page Number
Monday, April 6	Chapter 10-5: To solve equations and inequalities involving absolute value.	2-5
Tuesday, April 7	Chapter 10-5 continued: To solve equations and inequalities involving absolute value.	6-8
Wednesday, April 8	Chapters 10: 1-6 Review Graphing Linear Equations Review	9-11
Thursday, April 9	Chapter 10: 1-6 Quiz Chapter 10-7: Be able to graph linear inequalities in two variables. Test Friday, April 17th on 10-1 through 10-8	12 13-15
Friday, April 10	No school -- Holiday	

Additional Notes:

- ❖ **Materials:** Printed packet or notebook paper; pencils. (Calculators not needed).
 - **Note:** If you are using notebook paper, be sure to write the pages and numbers of the material.
 - **Example:** P. 6; #1) _____
- ❖ **Answers are given at the end of each assignment.**
- ❖ **Quiz:** Located on pages 15-16. This should be taken *without* looking at previous work. No answers are provided for the quiz.

Academic Honesty

I certify that I completed this assignment independently in accordance with the GHNO Academy Honor Code.

Student signature:

I certify that my student completed this assignment independently in accordance with the GHNO Academy Honor Code.

Parent signature:

Monday, April 6

Algebra Unit: Inequalities

Unit Overview: Inequalities


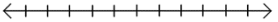
We are now starting Chapter 10, Inequalities. In this chapter, you will:

- 1) Review the concept of order and to graph inequalities in one variable,
- 2) Transform inequalities in order to solve them,
- 3) Solve problems that involve inequalities,
- 4) Find the solution sets of combined inequalities,
- 5) Solve equations with inequalities involving absolute value,
- 6) Extend your skill in solving open sentences that involve absolute value,
- 7) Graph linear inequalities in two variables,
- 8) Graph a solution set of a system of two linear inequalities in two variables.

Lesson 10-5: Absolute Value in Open Sentences


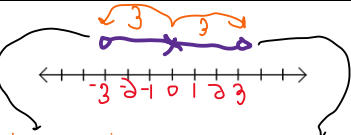
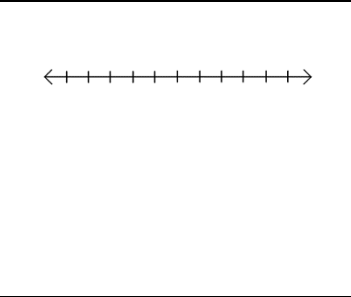
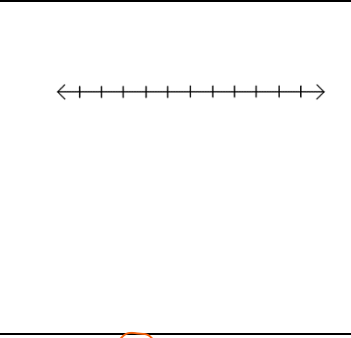
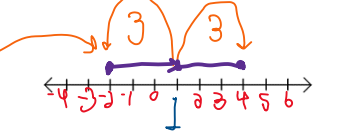
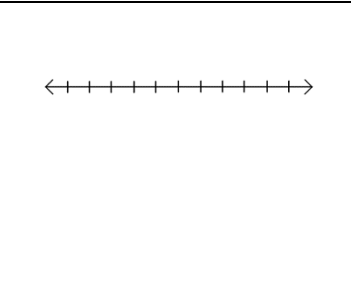
Objective: Be able to solve equations with inequalities involving absolute value.

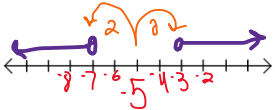
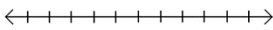

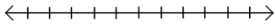

- Hello! I hope that you are all doing well. I really miss working with you in class!
- Today, we are starting with lesson 10-5. Let's get started 😊.
- **Reminder:** $|a|$ is the distance between the graph of a number a and the origin (0) on the number line.
-

Given	Graph	Word Sentence about the distance between numbers.	Answers
1) $ x = 4$		The distance between x and zero is 4 (4 right and 4 left).	$x = 4$ and $x = -4$
2) $ y = 3$ Your turn! 😊			

Algebra 1: Inequalities

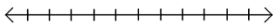
March 30-April 3

<p>3) $r \geq 5$</p>	 <p>These are GREATER than 5 hops from zero, so they point out.</p>	<p>The distance between r and zero is greater or equal to 5.</p>	<p>$r \geq 5$ or $r \leq -5$</p> <p>(Notice that the $>$ switched to $<$ when the sign changed).</p>
<p>4) $p < 3$</p>	 <p>These point inward because there must be LESS than 3 hops.</p>	<p>The distance between p and 0 is less than 3.</p>	<p>$p < 3$ AND $p > -3$</p> <p>(Notice that the $<$ switched to $>$ when the sign changed).</p> <ul style="list-style-type: none"> • “AND” is used because the lines join. • With “AND,” the answer is written like this: $-3 < p < 3$
<p>5) $m < 2$</p> <p>Try the next two.</p>			
<p>6) $n \geq 2$</p>			
<p>7) $n - 1 \leq 3$</p> <p>If you set the $n - 1 = 0$ $n = 1$ Then, 1 is where you start.</p>		<p>The distance between n and 1 is less than or equal to 3.</p>	<p>$n - 1 \leq 3$ AND $n - 1 \geq -3$</p> <p>(Notice that the signs changed).</p> <p>$n \leq 4$ AND $n \geq -2$</p> <p>$-2 \leq n \leq 4$</p>
<p>8) $n - 2 > 3$</p> <p>Give it a try!</p>			

<p>9) $v + 5 > 2$ $v + 5 = 0$ $v = -5$</p>		<p>The distance between v and -5 is greater than 2.</p>	<p>$v + 5 > 2$ OR $v + 5 < -2$</p> <ul style="list-style-type: none"> Notice that the first inequality is the same as what was given except it doesn't have absolute value signs. Also, the $>$ < switched as well as the signs. Solve: $v > -3$ OR $v < -7$
<p>10) $v + 5 < 2$ Similar yet different!</p>			
<p>11) $4 \leq 1 - s$ $1 - s \geq 4$ $1 - s = 0$ $+s +s$ $1 = s$</p>		<p>The distance between s and 1 is greater than or equal to 4.</p>	<p>$1 - s \geq 4$ OR $1 - s \leq -4$</p> <p>Solve: $-s \geq 3$ or $-s \leq -5$</p> <p>*Reminder: if you multiply or divide both sides by a negative, flip the signs!</p> <p>$s \leq -3$ or $s \geq 5$</p>
<p>12) $3 > 2 - q$</p>			
<p>13) $1 > 2 + m$ $2 + m < 1$ $2 + m = 0$ $m = -2$</p>		<p>The distance between m and -2 is less than 1.</p>	<p>$2 + m < 1$ and $2 + m > -1$ $m < -1$ and $m > -3$ $-3 < m < -1$</p>

Algebra 1: Inequalities

March 30-April 3

14) $8 \leq 3 + w $			
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➤ Answers: (5) $-2 < m < 2$ (6) $n \leq -2$ or $n \geq 2$ (8) $n < -1$ or $n > 5$ (10) $-7 < v < -3$ (12) $-1 < q < 5$ (14) $w \leq -11$ or $w \geq 5$

➤ Now, complete the ORAL EXCERISES #13-18 on p. 484. (Here or on loose-leaf).

13)	14)	15)
16)	17)	18)

Answers: (13) f (14) a (15) e (16) d (17) b (18) c

Tuesday, April 7

Algebra Unit: Inequalities

Lesson 10-5 Continued: Absolute Value in Open Sentences

Objective: Be able to extend your skill in solving open sentences that involve absolute value.

- Yesterday, we learned about the meaning of absolute value equations. Today, we will learn the simple way to solve them!
- Look at the equations that were written in yesterday's chart. Do you see the similarities?

<p>1) $k + 7 = 3$</p> $\begin{array}{r} k + 7 = 3 \quad \text{or} \quad k + 7 = -3 \\ -7 \quad -7 \qquad \quad -7 \quad -7 \\ k = -4 \quad \text{or} \quad k = -10 \end{array}$ <p>A number line with tick marks from -12 to -2. Two purple dots are placed at -4 and -10.</p>	<p>2) $7 - y = 4$</p> <p>A blank number line with 11 tick marks.</p>
<p>3) $s \geq 1.5$</p> $s \geq 1.5 \quad \text{or} \quad s \leq -1.5$ <p>A number line with tick marks from -2 to 2. Purple arrows point to the left from -1.5 and to the right from 1.5. The word 'or' is written in orange between the two arrows.</p>	<p>4) $t + 4 < 10$</p> $\begin{array}{r} t + 4 < 10 \quad \text{AND} \quad t + 4 > -10 \\ -4 \quad -4 \qquad \quad -4 \quad -4 \\ t < 6 \quad \text{and} \quad t > -14 \end{array}$ <p>A number line with tick marks from -14 to 6. Purple open circles are at -14 and 6, connected by a purple line. The word 'and' is written in orange above the line.</p>
<p>5) $4 - v \geq 5$</p> $\begin{array}{r} 4 - v \geq 5 \quad (\text{and/or??}) \quad 4 - v \leq -5 \\ -4 \quad -4 \qquad \quad -4 \quad -4 \\ -v \geq 5 \qquad \quad -v \leq -5 \\ v \leq -5 \qquad \quad v \geq 5 \end{array}$ <p>Remember, if you multiply or divide both sides by a negative number, you need to flip the greater than/less than sign.</p> <p>A number line with tick marks from -5 to 5. Purple arrows point to the left from -5 and to the right from 5. The word 'or' is written in orange between the two arrows.</p>	<p>6) $-1 - b \leq 6$</p> <p>A blank number line with 11 tick marks.</p>

Algebra 1: Inequalities

March 30-April 3

Answers: (2) {7, 11} (6) $-7 \leq b \leq 5$ or $b \geq -7$ and $b \leq 5$

➤ The next step is that you must isolate the absolute value before you write two equations.

<p>7) $4 p - 1 < 15$ $\quad +1 \quad +1$</p> <p>$4 p < 16$ $\div 4 \quad \div 4$</p> <p>$p < 4$</p> <p>Now you can write two inequalities and solve:</p> <p>$p < 4$ and $p > -4$</p>	<p>8) $2 - q - 3 < 1$ $\quad +3 \quad +3$</p> <p>$2 - q < 4$</p> <p>$2 - q < 4 \quad 2 - q > -4$ $\quad -2 \quad -2 \quad -2 \quad -2$</p> <p>$-q < 2 \quad -q > -6$</p> <p>$q > -2$ and $q < 6$</p> <p>Note: if you aren't sure if it is AND or OR, plot them on a number line.</p>
<p>9) $4 - 3 y < 1$ $\quad -4 \quad -4$</p> <p>$-3 y < -3$ $\div -3 \quad \div -3$</p> <p>$y > 1$</p> <p>$y > 1$ or $y < -1$</p>	<p>10) $8 - 1 - x > 7$</p>

Answer: (10) The numbers are between 0 and 2. $x > 0$ and $x < 2$ or $0 < x < 2$ ➤ **Your assignment:**

- p. 485 #13-27 odd, on the next page or on a piece of loose-leaf paper.
- Be sure to use a pencil, show the steps, and graph the solution set.
- Check all answers in the back of the book.
- Correct your work with a red pencil.

13)	15)
17)	19)
21)	23)
25)	27)

Reminder: Check and fix your answers 😊. Odd questions have answers in the back of the book.

Wednesday, April 8

Algebra Unit: Inequalities

Lesson: Review 10:1-6
Review graphing of linear equations.

Objective: Be able to solve inequalities and inequalities with absolute value.
Be able to write and graph linear equations.

- First, we will review sections 1-5 and complete a few questions from section 6.
- Turn to page 489 and work on the “Self-Test” #'s 1-12

1)	2) Reminder...Write two separate inequalities $-2 \leq y + 4 < 5$ $-2 \leq y + 4$ and $y + 4 < 5$
3)	4)
5)	6)
7)	8)

Algebra 1: Inequalities

March 30-April 3

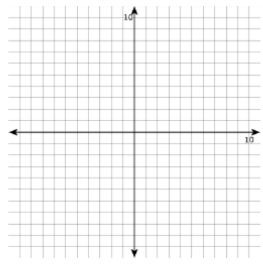
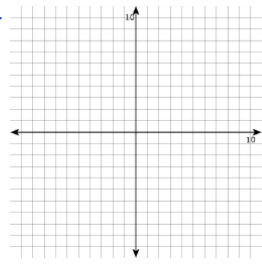
- Questions 9-12 are from 10-6. We didn't cover the details of this until, however, you can solve them the same way.

9) $ 4s - 13 \leq 7$ $4s - 13 \leq 7 \quad 4s - 13 \geq -7$ Finish...	10)
11)	12)

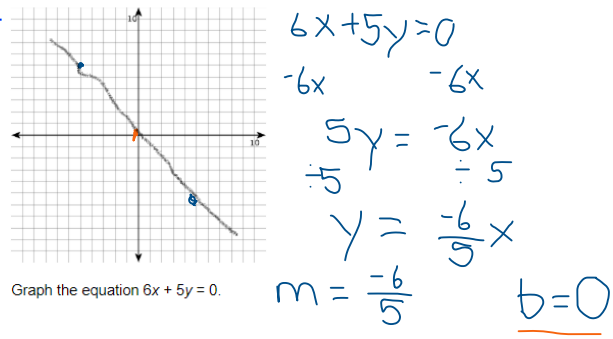
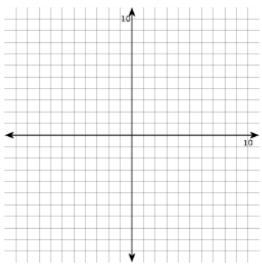
- Check your answers! They are all in the back of the book. These will be like the quiz tomorrow.
- The next questions are a review of graphing linear equations.
 - Be sure that Y is by itself and is in slope-intercept form ($y=mx+b$).
 - Begin the graph by graphing the y-intercept (b).
 - Use the slope (m) to plot more points.

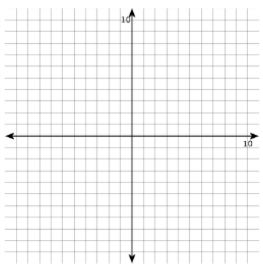
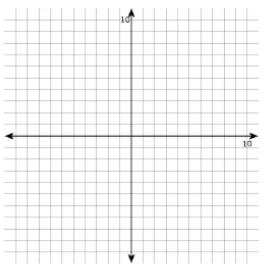
Graphing Worksheet

<p>1 a.</p> <p>Graph the equation $y = -3x + 3$.</p>	<p>1 b.</p> <p>Graph the equation $y = (-12/7)x - 7$.</p>
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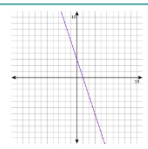
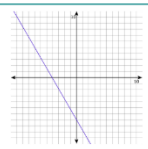
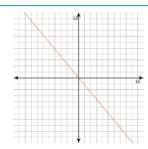
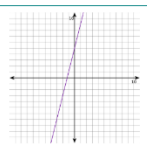
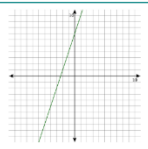
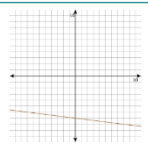
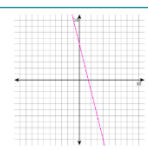
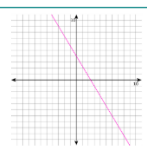
<p>2 a.</p>  <p>Graph the equation $y = 3x + 7$.</p>	<p>2 b.</p>  <p>Graph the equation $y = (-1/8)x - 7$.</p>
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➤ Solve for Y!

<p>1 a.</p>  <p>Graph the equation $6x + 5y = 0$.</p>	<p>1 b.</p>  <p>Graph the equation $4x - y + 5 = 0$.</p>
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<p>2 a.</p>  <p>Graph the equation $4x + y - 6 = 0$.</p>	<p>2 b.</p>  <p>Graph the equation $5x + 3y - 12 = 0$.</p>
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➤ Answers:

<p>1 a.</p>  <p>$y = -3x + 5$</p>	<p>1 b.</p>  <p>$y = (-1/2)x - 7$</p>	<p>2 a.</p>  <p>$6x + 5y = 0$</p>	<p>2 b.</p>  <p>$4x - y + 5 = 0$</p>
<p>2 a.</p>  <p>$y = 3x + 7$</p>	<p>2 b.</p>  <p>$y = (-1/8)x - 7$</p>	<p>2 a.</p>  <p>$4x + y - 6 = 0$</p>	<p>2 b.</p>  <p>$5x + 3y - 12 = 0$</p>

Thursday, April 9

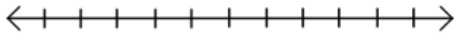
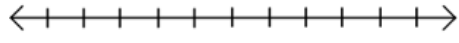
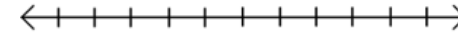
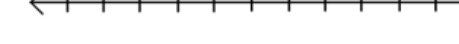
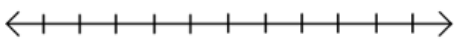
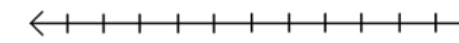
Algebra Unit: Inequalities

Quiz 10-1 to 10-6: Inequalities and Inequalities with Absolute Value

Lesson 10-7: Graphing Linear Inequalities

Objective: Be able to graph linear inequalities in two variables.

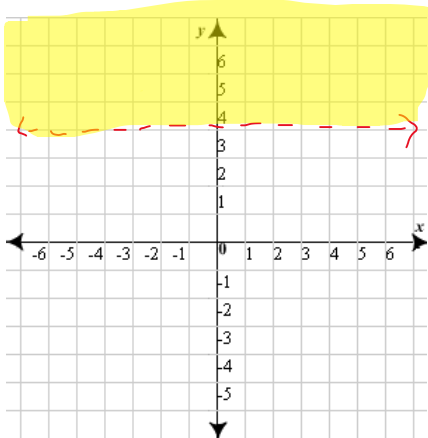
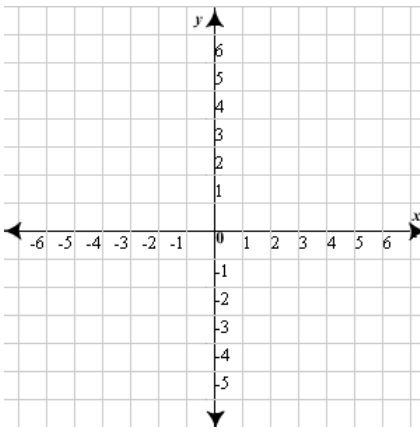
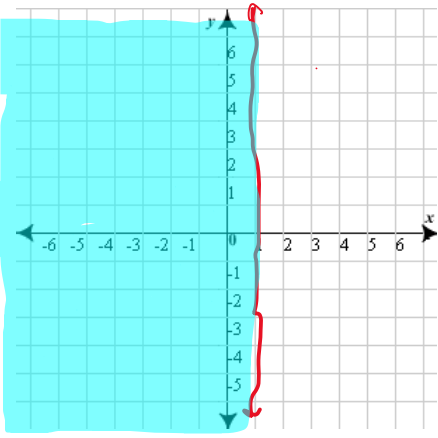
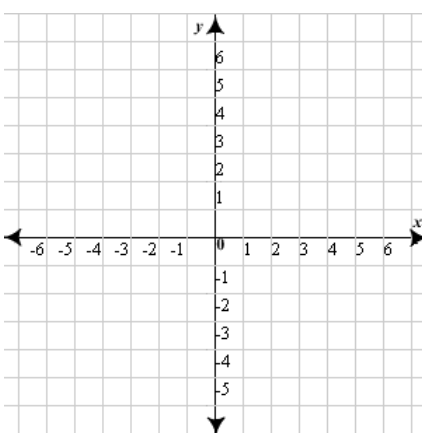
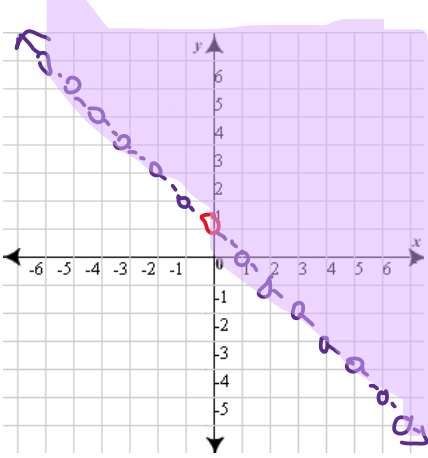
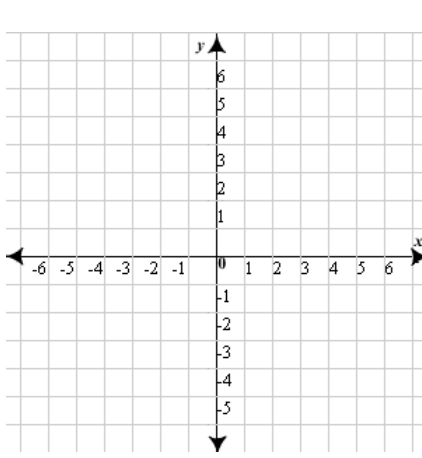
- Time for a quiz. All you need is a pencil.
- Solve and graph

1) $2x - 5 < 7$ 	2) $3(x - 1) \geq 6$ 
3) $-4 \leq 3a - 1 < 5$ 	4) $k + 6 \leq -3$ or $k + 6 > 2$ 
5) $ v - 6 = 3$ 	6) $ 3 + z \leq 4$ 

Algebra 1: Inequalities

March 30-April 3

- Great Job!!!
- Now, we will begin 10-7
- Open textbook to page 492-493 and look at the Written Exercises.

EXAMPLES	HOMEWORK
<p>2) $y > 4$</p> <p>Dotted line because no equal sign.</p>  <p>Colored ABOVE because GREATER THAN.</p>	<p>1) $y \geq 4$</p> 
<p>4) $x \leq 1$</p> <p>Solid line because equal sign.</p>  <p>Shaded left because numbers to left are less.</p>	<p>3) $x < 1$</p> 
<p>10) $y > -x + 1$</p> <p>$m = -1/1$</p> <p>$b = 1$</p> <p>Greater than, so shade above the line</p> 	<p>9) $y < x + 5$</p> 

Algebra 1: Inequalities

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<p>12) $y \geq 1 - 3x$</p> <p>$m = -3/1$</p> <p>$b = 1$</p> <p>Solid dots and line because there is an equal sign.</p>	<p>11) $y \leq 3 - x$</p>
<p>14) $x - y \geq 3$</p> <p>Solve for y.</p> <p>$-y \geq -x + 3$</p> <p>$y \leq x - 3$</p> <p>Note: If you pick a point in the shaded region (5, 1), it will work.</p> <p>$x - y \geq 3$</p> <p>$5 - 1 \geq 3$</p> <p>$4 \geq 3$ True</p>	<p>13) $x + y < 1$</p>
<p>16) $2x + y > -4$</p> <p>$y > -2x - 4$</p> <p>Does (0, 0) work?</p> <p>$2(0) + 0 > -4$</p> <p>$0 > -4$ True</p> <p>Does (-4, 1) work?</p> <p>$2(-4) + 1 > -4$</p> <p>$-8 + 1 > -4$</p> <p>$-7 > -4$ False</p>	<p>15) $x - 3y \leq -6$</p>

Algebra 1: Inequalities

March 30-April 3

26) See graph. Answer: $x \leq 2$	25) See graph. Answer: _____
28) slope = $m = -\frac{3}{2}$, y - intercept = $b = 0$ $y = mx + b$ $y < -\frac{3}{2}x$	27) See graph $m =$ _____ $b =$ _____ Equation: _____

➤ Be sure to check your answers in the back of the textbook!

➤ ***NOTE: Test next Friday, April 17 on 10-1 through 10-8***

Friday, April 10

Algebra Unit: Inequalities

Lesson: Holiday! See you on Tuesday!