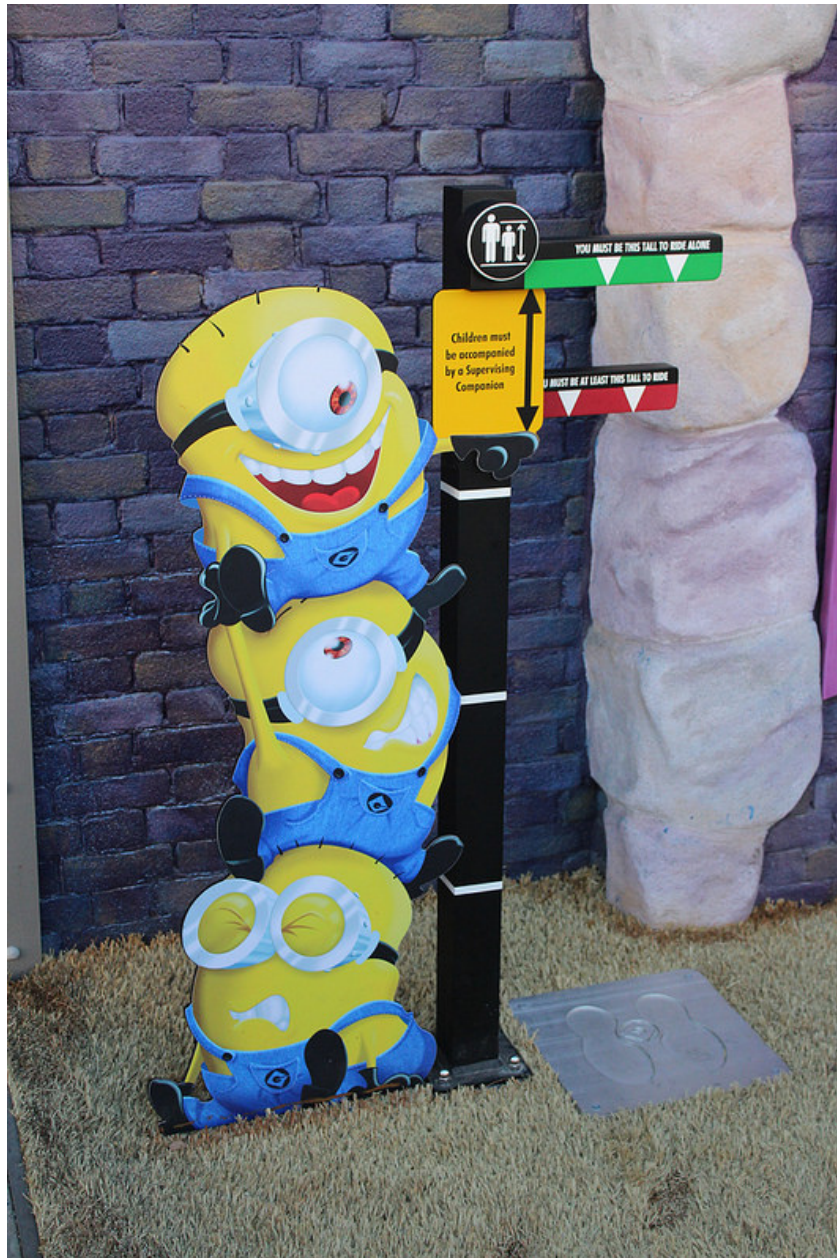# Chapter 9 Booklet
Linear Inequalities

Name: _____

Due Date: _____

MATH 9 – LINEAR INEQUALITIES
REGULAR ASSESSMENT RECORD

Name: _____ Class: _____

Category	Topic	Due Date	Mark
9.1	***Representing Inequalities***		
	Pg. 346/347 Q. 4, 5, 7, 8, 9, 11, 12, 13, 15		
	Pg. 348/349 Q. 16, 20, 21, 23, 25		
9.2	***Solving Single Step Inequalities***		
	Pg. 357 Q. 4, 5, 6, 7, 9, 11, 12		
	Pg. 358/359 Q. 14, 16, 18, 22, 24, 25, 28		
9.3	***Solving Multi-Step Inequalities***		
	Pg. 365/366 Q. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14		
	Pg. 367 Q. 15, 16, 17, 18, 19, 21, 22		
Review	Pg. 368 Q. 1 – 20		

At the end of this unit you will be assessed on the following:

☐ 1. I can represent linear inequalities verbally, algebraically, and graphically.

☐ 2.   I can determine and verify the solutions of linear inequalities.

☐ 3.   I can determine which operations will reverse the inequality sign of an inequality.

☐ 4. I can compare/contrast and explain the solutions of linear equations and linear inequalities.

☐ 5. I can solve problems involving linear inequalities.

☐ 6. I can display the solution of a linear inequality on a number line.

☐ 7. I can verify the solutions of an inequality with a boundary point check and a directional shading check.

9.1 *Representing Inequalities*

Inequalities

▸ The maximum weight of a Ferris Wheel is 450 tonnes

▸ You should drink at least 8 cups of water a day

▸ You should eat at most 6 Big Macs in an hour

▸ You have less than 4 hours until the weekend

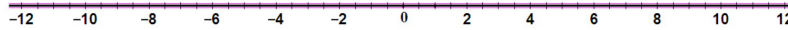▸ There are more than 2 elephants at the zoo

Inequality Symbols

Symbol	Meaning
≥	Greater than or equal to
≤	Less than or equal to
>	Greater than
<	Less than
=	Equal to *Please note: this is NOT an inequality symbol*
≠	Not equal to

Examples:

Inequalities and Number Lines

$x > 10$

$x \leq -5$

$x \neq 7$

Dual Inequalities

$-2 \leq x \leq 6$

$x \leq -3 \ \text{ or } \ x \geq 4$

Practice Problems:

9.1 *Representing Inequalities*

Pages 346 – 349   DUE DATE: _____

Page 346, #4	Page 347, #5
Page 347, #7	Page 347, #8
Page 347, #9	Page 347, #11

Page 347, #12	Page 347, #13
Page 347, #15	Page 348, #16
Page 348, #20	Page 348, #21

Page 349, #23	Page 349, #25

9.2 *Solving Single Step Inequalities*

Review of 9.1

$$x > -3$$ ←——————————→

$$x \geq -3$$ ←——————————→

$$x < -3$$ ←——————————→

$$x \leq -3$$ ←——————————→

$$-3 \leq x \leq 3$$ ←——————————→

$$x \leq -3 \text{ or } x \geq 3$$ ←——————————→

* When you multiply or divide by a negative number, the inequality must be reversed.

$3x = 24$ ←——————→ $-3x < 24$ ←——————→

Check your answers

Boundary Point   Shading Direction

$3x < 24$ ←——————→   LS | RS   LS | RS   LS

$-3x < 24$ ←——————→

Examples:

$5x \geq -20$ ⟵――――――――⟶
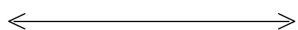
$-\frac{3}{4}x > \frac{6}{7}$ ⟵――――――――⟶

$\frac{2}{3}x \leq 7$ ⟵――――――――⟶

$\frac{8}{x} \leq 32$ ⟵――――――――⟶

Midway rides cost $4.75 each. I have only $70 to spend on midway rides . How many rides can I go on ?

Practice Problems:

9.2 *Solving Single Step Inequalities*

REMEMBER: WHEN YOU MULTIPLY OR DIVIDE BY A NEGATIVE NUMBER, YOU MUST _____

Questions Page 356 – 359   DUE:_____

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Page 357, #6

Page 357, #7

Page 357, #9

Page 357, #11

Page 357, #12

Page 358, #14

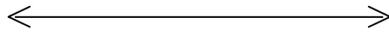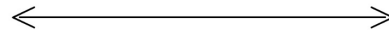| Page 358, #16 | Page 358, #18 |
| Page 359, #22 | Page 359, #24 |
| Page 359, #25 | Page 359, #28 |

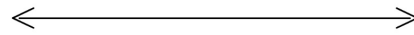# 9.3 *Solving Multi Step Inequalities*

$1.5x - 3.5 \neq 2.8$ $\longleftrightarrow$

$\frac{3}{8}x + \frac{1}{2} < \frac{13}{8}$ $\longleftrightarrow$

$-\frac{x}{2} + 3 < \frac{x}{3} - \frac{9}{2}$ $\longleftrightarrow$

$\frac{8x}{9} - \frac{1}{3} \leq \frac{5}{6} + \frac{7}{3}x$ $\longleftrightarrow$

Dual Inequalities

$-3 \leq x \leq 5$ $\longleftrightarrow$
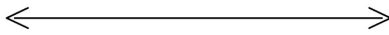
$x \leq -6$ or $x \geq 4$ $\longleftrightarrow$

Check your answers

Boundary Point				Shading Direction		
RS	LS	RS	LS	RS	LS	RS

Examples:

$5x + 7 \leq -23$

$2x - 3 \geq 13$

$\longleftrightarrow$
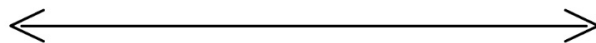
$\frac{2}{3}x + 4 \geq 18$

$\frac{3}{8}x - 7 \leq 11$

$\longleftrightarrow$
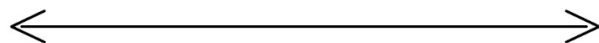
Two clothing companies are competing to offer Cobra clothing. One company charges $10 per t-shirt with a flat rate of $85.50 for printing. The other company charges $9.25 per t-shirt with a flat rate of $100. Determine when the second company becomes cheaper.

9.3 *Solving Multi Step Inequalities*

Questions Page 365-367   DUE:_____

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Page 367, #22

Review Page 368-369   DUE:_____

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Page 369, #18	Page 369, #19
Page 369, #20	