

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Group: \_\_\_\_\_

**Additional Exercises**

1. Complete the following table.

Set-Builder Notation	Listing	Interval Notation	Number Line
$\{x \in \mathbb{N} \mid x \leq 6\}$			
		$[0, 5[$	
$\{x \in \mathbb{R} \mid 8 < x < 12\}$			

2. Associate each statement below to one of the inequalities by noting the capital letter in the box corresponding to the inequality.

**Inequalities**

- A  $3x < 2(x-1)$     E  $2x \leq 4$   
 B  $3x \leq 2(x-1)$     F  $2x \geq 4$   
 C  $3x > 2(x-1)$     G  $2x < 4$   
 D  $3x \geq 2(x-1)$     H  $2x > 4$

- a) The double of  $x$  does not exceed 4. ....   
 b) 4 is at most equal to the double of  $x$ . ....   
 c) The triple of a number is less than double the number that precedes it. ....   
 d) 4 is less than the double of  $x$ . ....   
 e) The triple of a number does not exceed double the number that precedes it. ....   
 f) 4 is at least equal to the double of  $x$ . ....   
 g) The triple of a number is at most equal to double the number that precedes it. ....   
 h) The triple of a number is not less than or equal to double the number that precedes it. ....

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
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**Additional Exercises (continued)**

3. Translate the following situations into an inequality by using the suggested variable.

- a) This year, 650 people attended the Rose Gala, which is at least 25 more participants than the double of last year. Use  $n$  to represent the number of people that attended last year.
- b) Felix has 22 tokens, that is, no more than 5 fewer counters than triple the number of Antoine's counters. Use  $n$  to represent the number of counters Antoine has.
4. Solve the following inequalities. Express the solution set in words and in another form of your choice.
- a)  $2x - 7 + 3x < 9 + x - 4$ , where  $x$  represents the number of marbles belonging to Antoine.
- b)  $0.5x - 9.4 - 3.5x \leq 6.4 - 5.6x - 0.85$ , where  $x$  represents Maria's assets in dollars.

5. List the solution set, where  $n$  represents an integer. Show the steps of your calculations.

- a)  $8 + 5n - 3(n - 2) \geq -7 - 7n$     b)  $\frac{2}{3}n - \frac{1}{4} \leq \frac{5n}{12}$     c)  $\frac{18 - 2n}{10} \geq \frac{2n + 3}{5}$

Name: Ann Serkey Group: \_\_\_\_\_  
Date: \_\_\_\_\_

**Additional Exercises (continued)**

1. Complete the following table.

Set-Builder Notation	Listing	Interval Notation	Number Line
$\{x \in \mathbb{N} \mid x \leq 6\}$	{0, 1, 2, 3, 4, 5, 6}	Does not apply	
$\{x \in \mathbb{Z} \mid x \geq -2\}$	{-2, -1, 0, 1, 2, 3, ...}	Does not apply	
$\{x \in \mathbb{R} \mid 0 \leq x < 5\}$	Does not apply	[0, 5[	
$\{x \in \mathbb{R} \mid 8 < x < 12\}$	Does not apply	]8, 12[	

2. Associate each statement below to one of the inequalities by noting the capital letter in the box corresponding to the inequality.

Inequalities			
A	$3x < 2(x-1)$	E	$2x \leq 4$
B	$3x \leq 2(x-1)$	F	$2x \geq 4$
C	$3x > 2(x-1)$	G	$2x < 4$
D	$3x \geq 2(x-1)$	H	$2x > 4$

- a) The double of  $x$  does not exceed 4. E
- b) 4 is at most equal to the double of  $x$ . F
- c) The triple of a number is less than double the number that precedes it. A
- d) 4 is less than the double of  $x$ . H
- e) The triple of a number does not exceed double the number that precedes it. B
- f) 4 is at least equal to the double of  $x$ . E
- g) The triple of a number is at most equal to double the number that precedes it. B
- h) The triple of a number is not less than or equal to double the number that precedes it. C

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**Additional Exercises (continued)**

3. Translate the following situations into an inequality by using the suggested variable.

- a) This year, 650 people attended the Rose Gala, which is at least 25 more participants than the double of last year. Use  $n$  to represent the number of people that attended last year.  
 $650 \geq 2n + 25$
- b) Felix has 22 tokens, that is, no more than 5 fewer counters than triple the number of Antoine's counters. Use  $n$  to represent the number of counters Antoine has.  
 $22 \leq 3n - 5$

4. Solve the following inequalities. Express the solution set in words and in another form of your choice.

- a)  $2x - 7 + 3x < 9 + x - 4$ , where  $x$  represents the number of marbles belonging to Antoine.  
 $4x < 12$   
 $x < 3$   
Antoine has less than 3 marbles, {0, 1, 2},  $\{x \in \mathbb{N} \mid x < 3\}$  (or another equivalent form).
- b)  $0.5x + 9.4 - 6.5x \leq 6.4 - 5.6x - 0.85$ , where  $x$  represents Maria's assets in dollars.  
 $2.6x \leq 14.95$   
 $x \leq 5.75$   
Maria has at most \$5.75,  $\{x \in \mathbb{R} \mid x \leq 5.75\}$  (or another equivalent form).

5. List the solution set, where  $n$  represents an integer. Show the steps of your calculations.

- a)  $8 + 5n - 3(n - 2) \geq -7 - 7n$     b)  $\frac{2}{3}n - \frac{1}{4} \leq \frac{5n}{12} + 1$     c)  $\frac{18 - 2n}{10} \geq \frac{2n + 3}{5}$
- $$\begin{aligned} 8 + 5n - 3n + 6 &\geq -7 - 7n \\ 2n + 14 &\geq -7 - 7n \\ 9n &\geq -21 \\ n &\geq -\frac{7}{3} \\ \{ \dots, -2, -1, 0, 1, 2, 3, 4, 5 \} \end{aligned}$$

$$\begin{aligned} \frac{8n - 3}{12} - \frac{3n + 2}{4} &\geq -\frac{7n + 7}{10} \\ 8n - 3 - 3n &\leq 5n + 12 \\ 5n - 3 &\leq 5n + 12 \\ 3n &\leq 15 \\ n &\leq 5 \\ \{ \dots, -2, -1, 0, 1, 2, 3, 4, 5 \} \end{aligned}$$

$$\begin{aligned} \frac{18 - 2n}{10} &\geq \frac{2n + 3}{5} \\ 18 - 2n &\geq 2(2n + 3) \\ -2n - 4n &\geq -18 + 6 \\ -6n &\geq -12 \\ n &\leq 2 \\ \{ \dots, -3, -2, -1, 0, 1, 2 \} \end{aligned}$$