Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Algebra 1 Chapter 03 Review

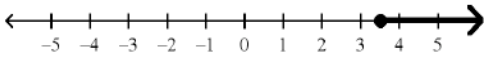
Multiple Choice
Identify the choice that best completes the statement or answers the question.

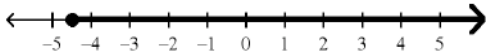
Write the inequality in words.

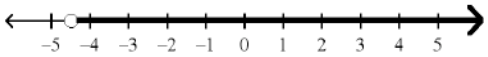
____ 1. $3n < 52$
a. fifty-two less than three times n
b. Three times n is less than fifty-two.
c. Three times n is less than or equal to fifty-two.
d. Three times n is greater than fifty-two.

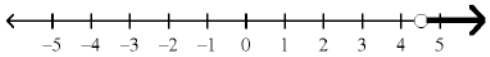
Graph the inequality.

____ 2. $k > \frac{9}{2}$

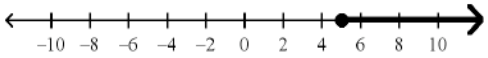
a. 

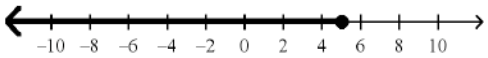
c. 

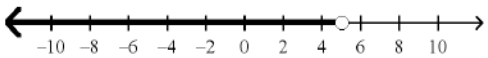
b. 

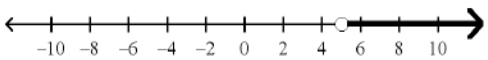
d. 

____ 3. $x \le 5$

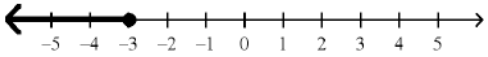
a. 

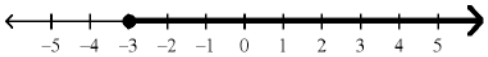
b. 

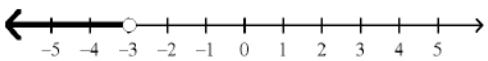
c. 

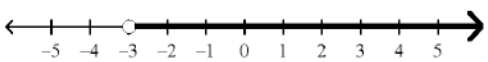
d. 

____ 4. $x \ge -3$

a. 

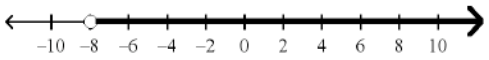
b. 

c. 

d. 

Name: _____ **ID: A**

Write an inequality for the graph.

____ 5. 

a. $x \le -8$ b. $x < -8$ c. $x > -8$ d. $x < 8$

Write an inequality to model the situation.

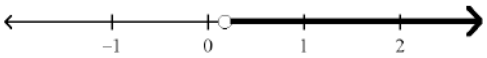
____ 6. A number exceeds 21.

a. $n \ge 21$ b. $n \le 21$ c. $n > 21$ d. $n < 21$

Solve the inequality. Then graph your solution.

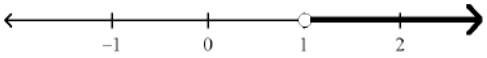
____ 7. $q - \frac{1}{2} > \frac{1}{3}$

a. $q > \frac{1}{6}$

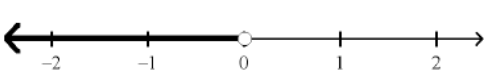


c. $q > \frac{5}{6}$

b. $q > 1$

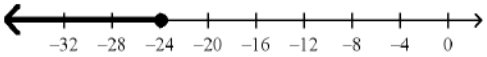


d. $q < \frac{0}{1}$

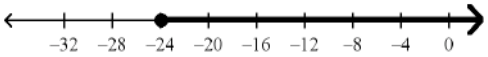


____ 8. $\frac{x}{4} \ge -6$

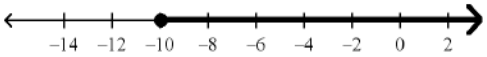
a. $x \le -24$



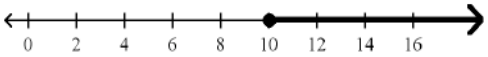
c. $x \ge -24$



b. $x \ge -10$

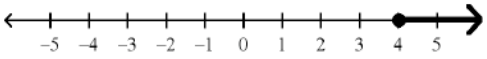


d. $x \ge 10$

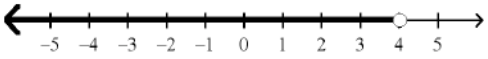


____ 9. $2x \ge 8$

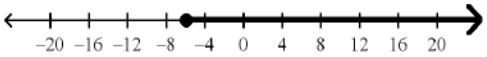
a. $x \ge 4$



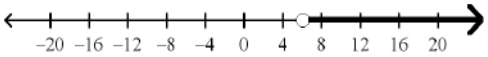
c. $x \le 4$



b. $x \ge -6$



d. $x > 6$



Solve the inequality.

____ 10. $-5.3 \ge 6.7 + 4.3 + q$

a. $-15.3 \ge q$ b. $16.3 \ge q$ c. $15.3 \ge q$ d. $-16.3 \ge q$

____ 11. $\frac{1}{3} + x + \frac{2}{9} \geq \frac{5}{6}$

a. $x \geq \frac{5}{18}$ b. $x \leq \frac{17}{18}$ c. $x \geq \frac{17}{18}$ d. $x \geq 1\frac{7}{18}$

____ 12. $-5x - 7 < 28$

a. $x > -7$ b. $x < -7$ c. $x > \frac{21}{5}$ d. $x < -\frac{21}{5}$

____ 13. $2(b - 8) > 12$

a. $b > 20$ b. $b > 6$ c. $b > 14$ d. $b < 20$

____ 14. Jeanette wants to tile the floor of a room in her house. The square tiles measure $\frac{3}{4}$ ft on each side. The room is 10 ft wide.

a. Write an inequality to describe how many tiles are needed to make one row of tiles across the width of the room.

b. Solve the inequality.

c. How many tiles should Jeanette buy to form one row?

a. $\frac{3}{4}t \geq 10$; $t \geq 13\frac{1}{3}$; 13 c. $\frac{3}{4} + t \geq 10$; $t \geq 9\frac{1}{4}$; 10

b. $\frac{3}{4}t \geq 10$; $t \geq 13\frac{1}{3}$; $13\frac{1}{3}$ d. $\frac{3}{4}t \geq 10$; $t \geq 13\frac{1}{3}$; 14

____ 15. Alexandria wants to go hiking on Saturday. She will choose from several parks considering these conditions.

- She wants to hike for 2 hours.
- She wants to spend no more than 6 hours away from home.
- She can average 65 miles per hour to and from the park.

Write and solve an inequality to find possible distances from Alexandria's home to a park that satisfies the conditions.

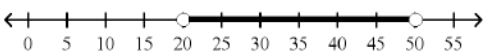
a. $2 + \frac{65}{d} \leq 6$; $d \leq 16$ miles c. $2 + \frac{d}{65} \leq 6$; $d \leq 260$ miles

b. $6 + \frac{d}{65} \geq 2$; $d \geq 392$ miles d. $2 + \frac{d}{65} \leq 6$; $d \leq 392$ miles

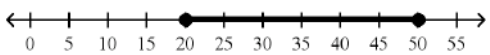
Write a compound inequality that represents each situation. Graph your solution.

____ 16. On a road in the city of Rochester, the maximum speed is 50 miles per hour, and the minimum speed is 20 miles per hour.

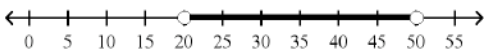
a. $20 > x > 50$



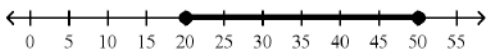
c. $20 \leq x \leq 50$



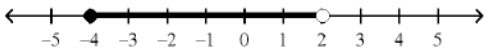
b. $20 < x < 50$



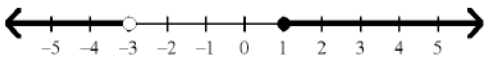
d. $20 \geq x \geq 50$



Write a compound inequality that the graph could represent.

____ 17. 

a. $-2 \le x < 4$
b. $-4 < x \le 2$
c. $x \ge -4$ or $x < 2$
d. $-4 \le x < 2$

____ 18. 

a. $d > -3$ or $d \le 1$
b. $d < -1$ or $d \ge 3$
c. $d < -3$ or $d \ge 1$
d. $-1 \le d < 3$

Write an inequality for the situation.

____ 19. all real numbers at most –9.5 or at least 5.5
a. $b \le -9.5$ or $b \le 5.5$
b. $-9.5 \le b \le 5.5$
c. $b \ge -9.5$ or $b \ge 5.5$
d. $b \le -9.5$ or $b \ge 5.5$

Solve the equation. If there is no solution, write *no solution*.

____ 20. $2|n| - 12 = 16$
a. $n = 14$ or $n = -14$
b. $n = 26$ or $n = -30$
c. no solution
d. $n = 14$

____ 21. $-2|h - 7| = -28$
a. no solution
b. $h = 21$
c. $h = -7$, $h = 21$
d. $h = 7$, $h = -21$

Short Answer

22. Eduardo solved $-4x > 120$ by adding 4 to each side of the inequality. What mistake did he make?

Essay

23. Suppose a classmate is having difficulty solving $4(x - 7) > 6x + 2 + 8x$. Explain how to solve the inequality, showing all the necessary steps and identifying the properties you would use.

24. Three consecutive even numbers have a sum between 84 and 96.
a. Write an inequality to find the three numbers. Let n represent the smallest even number.
b. Solve the inequality.

25. Suppose you start with at least $52 in your savings account and deposit $27 each week. Write an inequality to describe how much money m you have after w weeks. If you do this for 11 weeks, will you have enough to buy a bicycle that costs $340? Show your work.

Algebra 1 Chapter 03 Review
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L3 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 KEY: translating an inequality | inequality
2. ANS: D PTS: 1 DIF: L2 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 TOP: 3-1 Example 3 KEY: graphing | inequality
3. ANS: B PTS: 1 DIF: L2 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 TOP: 3-1 Example 3 KEY: graphing | inequality
4. ANS: B PTS: 1 DIF: L2 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 TOP: 3-1 Example 3 KEY: graphing | inequality
5. ANS: C PTS: 1 DIF: L2 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 TOP: 3-1 Example 4
   KEY: writing an inequality from a graph | graphing
6. ANS: C PTS: 1 DIF: L2 REF: 3-1 Inequalities and Their Graphs
   OBJ: 3-1.2 Graphing and Writing Inequalities in One Variable
   STA: CA A1 5.0 KEY: modeling with inequalities | translating an inequality
7. ANS: C PTS: 1 DIF: L3
   REF: 3-2 Solving Inequalities Using Addition and Subtraction
   OBJ: 3-2.1 Using Addition to Solve Inequalities STA: CA A1 5.0
   TOP: 3-2 Example 1 KEY: Addition Property of Inequality | solving inequalities
8. ANS: C PTS: 1 DIF: L2
   REF: 3-3 Solving Inequalities Using Multiplication and Division
   OBJ: 3-3.1 Using Multiplication to Solve Inequalities STA: CA A1 5.0
   TOP: 3-3 Example 1
   KEY: Multiplication Property of Inequality for $c > 0$ | solving inequalities
9. ANS: A PTS: 1 DIF: L2
   REF: 3-3 Solving Inequalities Using Multiplication and Division
   OBJ: 3-3.2 Using Division to Solve Inequalities STA: CA A1 5.0
   TOP: 3-3 Example 3 KEY: Division Property of Inequality | solving inequalities
10. ANS: D PTS: 1 DIF: L3
    REF: 3-2 Solving Inequalities Using Addition and Subtraction
    OBJ: 3-2.2 Using Subtraction to Solve Inequalities STA: CA A1 5.0
    TOP: 3-2 Example 3
    KEY: Subtraction Property of Inequality | solving inequalities | like terms
11. ANS: A PTS: 1 DIF: L4
    REF: 3-2 Solving Inequalities Using Addition and Subtraction
    OBJ: 3-2.2 Using Subtraction to Solve Inequalities STA: CA A1 5.0
    TOP: 3-2 Example 3
    KEY: Subtraction Property of Inequality | like terms | solving inequalities

12. ANS: A PTS: 1 DIF: L2 REF: 3-4 Solving Multi-Step Inequalities
OBJ: 3-4.1 Solving Inequalities With Variables on One Side STA: CA A1 4.0 | CA A1 5.0
TOP: 3-4 Example 1
KEY: modeling with inequalities | multi-step inequality with variables on one side | solving inequalities
13. ANS: C PTS: 1 DIF: L2 REF: 3-4 Solving Multi-Step Inequalities
OBJ: 3-4.1 Solving Inequalities With Variables on One Side STA: CA A1 4.0 | CA A1 5.0
TOP: 3-4 Example 3
KEY: solving inequalities using the Distributive Property | like terms | solving inequalities
14. ANS: D PTS: 1 DIF: L4
REF: 3-3 Solving Inequalities Using Multiplication and Division
OBJ: 3-3.1 Using Multiplication to Solve Inequalities STA: CA A1 5.0
TOP: 3-3 Example 4
KEY: Multiplication Property of Inequality for $c > 0$ | problem solving | word problem | solving inequalities | multi-part question
15. ANS: C PTS: 1 DIF: L4 REF: 3-4 Solving Multi-Step Inequalities
OBJ: 3-4.1 Solving Inequalities With Variables on One Side STA: CA A1 4.0 | CA A1 5.0
TOP: 3-4 Example 2
KEY: solving inequalities | problem solving | word problem | solving inequalities
16. ANS: C PTS: 1 DIF: L2 REF: 3-5 Compound Inequalities
OBJ: 3-5.1 Solving Compound Inequalities Containing And STA: CA A1 3.0
TOP: 3-5 Example 3
KEY: writing a compound inequality | compound inequality | solving inequalities
17. ANS: D PTS: 1 DIF: L3 REF: 3-5 Compound Inequalities
OBJ: 3-5.1 Solving Compound Inequalities Containing And STA: CA A1 3.0
TOP: 3-5 Example 4 KEY: writing a compound inequality | compound inequality
18. ANS: C PTS: 1 DIF: L3 REF: 3-5 Compound Inequalities
OBJ: 3-5.2 Solving Compound Inequalities Joined by Or STA: CA A1 3.0
TOP: 3-5 Example 4 KEY: writing a compound inequality | compound inequality
19. ANS: D PTS: 1 DIF: L2 REF: 3-5 Compound Inequalities
OBJ: 3-5.2 Solving Compound Inequalities Joined by Or STA: CA A1 3.0
TOP: 3-4 Example 4
KEY: writing a compound inequality | compound inequality | translating an inequality
20. ANS: A PTS: 1 DIF: L3
REF: 3-6 Absolute Value Equations and Inequalities
OBJ: 3-6.1 Solving Absolute Value Equations STA: CA A1 3.0
TOP: 3-6 Example 1 KEY: absolute value | Addition Property of Equality
21. ANS: C PTS: 1 DIF: L3
REF: 3-6 Absolute Value Equations and Inequalities
OBJ: 3-6.1 Solving Absolute Value Equations STA: CA A1 3.0
TOP: 3-6 Example 2 KEY: absolute value | Division Property of Equality

SHORT ANSWER

22. ANS:
He should have divided each side by –4.

PTS: 1 DIF: L3
REF: 3-3 Solving Inequalities Using Multiplication and Division
OBJ: 3-3.2 Using Division to Solve Inequalities STA: CA A1 5.0
TOP: 3-3 Example 3
KEY: Division Property of Inequality | writing in math | error analysis

ESSAY

23. ANS:

[4]

$4(x - 7) > 6x + 2 + 8x$	
$4x - 28 > 6x + 2 + 8x$	Use the Distributive Property
$4x - 28 > 14x + 2$	Combine like terms.
$4x - 28 - 4x > 14x + 2 - 4x$	Subtraction Property of Inequality
$-28 > 10x + 2$	Simplify.
$-28 - 2 > 10x + 2 - 2$	Subtraction Property of Inequality
$-30 > 10x$	Simplify.
$\frac{-30}{10} > \frac{10x}{10}$	Division Property of Inequality
$-3 > x$	Simplify.

[3] one computational or property error
[2] two computational or property errors
[1] computational steps or properties missing

PTS: 1 DIF: L3 REF: 3-4 Solving Multi-Step Inequalities
OBJ: 3-4.2 Solving Inequalities With Variables on Both Sides
STA: CA A1 4.0 | CA A1 5.0 TOP: 3-4 Example 5
KEY: multi-step inequality | extended response | rubric-based question | writing in math

24. ANS:

[4] a. $84 \le n + (n+2) + (n+4) \le 96$

b. $84 \le n + n + 2 + n + 4 \le 96$

$84 \le 3n + 6 \le 96$

$84 - 6 \le 3n + 6 - 6 \le 96 - 6$

$78 \le 3n \le 90$

$\frac{78}{3} \le \frac{3n}{3} \le \frac{90}{3}$

$26 \le n \le 30$

[3] one computational error

[2] incorrect inequality OR two computational errors

[1] one or more answers missing

PTS: 1 DIF: L4 REF: 3-5 Compound Inequalities

OBJ: 3-5.1 Solving Compound Inequalities Containing And STA: CA A1 3.0

TOP: 3-5 Example 3

KEY: writing a compound inequality | solving a compound inequality containing AND | problem solving | word problem | extended response | rubric-based question

25. ANS:

[4] $m \ge 52 + 27w$

$w = 11$, so

$m \ge 52 + 27(11)$

$m \ge 52 + 297$

$m \ge 349$

yes; because there is at least $349 in your account

[3] one computational error or wrong conclusion

[2] two computational errors or no work shown

[1] no conclusion and one or more errors

PTS: 1 DIF: L3 REF: 3-2 Solving Inequalities Using Addition and Subtraction

OBJ: 3-2.2 Using Subtraction to Solve Inequalities STA: CA A1 5.0

KEY: translating an inequality | modeling with inequalities | problem solving | word problem | extended response | rubric-based question