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Chapter 5 Test – Linear Inequalities

| | | | | | | | |
|-------|---|---------|---|---------|------------|------------------|-------------------------|
| Grade | 8 | Chapter | 5 | Lessons | 5-1 to 5-6 | Coursebook Pages | 282-327 plus the pdf |
|-------|---|---------|---|---------|------------|------------------|-------------------------|

| | | | | | |
|--------------|--|-------|--|------|--|
| Student Name | | Class | | Date | |
|--------------|--|-------|--|------|--|

Multiple Choice: CALCULATOR NOT ALLOWED

| | | |
|---|---|--------------------|
| 1 | Which of the following is the solution set of the inequality below? $y - 8 \geq -12$ | |
| | A | $\{y y \leq -20\}$ |
| | B | $\{y y \geq -20\}$ |
| | C | $\{y y \leq -4\}$ |
| | D | $\{y y \geq -4\}$ |

| | | |
|---|---|-----|
| 2 | What is a possible solution of the inequality below? $-5 > f + 18$ | |
| | A | -33 |
| | B | -23 |
| | C | 0 |
| | D | 13 |

| | | |
|---|---|--------------------|
| 3 | Which of the following inequalities will have the solution set graphed below? | |
| | | |
| | A | $\frac{m}{2} < 5$ |
| | B | $\frac{m}{2} > 5$ |
| | C | $\frac{m}{-2} < 5$ |
| D | $\frac{m}{-2} > 5$ | |

| | | |
|---|---|------|
| 4 | What is a possible solution of the inequality below? $-\frac{1}{2}x \leq -9$ | |
| | A | -18 |
| | B | -4.5 |
| | C | 0 |
| | D | 22 |



Chapter 5 Test – Linear Inequalities

| | | |
|---|---|-------------------------|
| 5 | Find the solution set for the inequality given as a sentence below. | |
| | <i>Three times a number minus eighteen is greater than five times the same number minus four.</i> | |
| | A | <i>all real numbers</i> |
| | B | $\{k k < -7\}$ |
| | C | $\{k k > -7\}$ |
| D | $\{k k > -\frac{11}{4}\}$ | |

| | | |
|---|--|--|
| 6 | When the compound inequality below is solved, which of the following represents a partial graph of the solution set? | |
| | $2x - 5 < -3$ or $3x + 2 > 17$ | |
| | A | |
| | B | |
| | C | |
| D | | |

| | | |
|---|--|----------------------------------|
| 7 | Which of the following is the solution set of the absolute value inequality below? | |
| | $ n + 3 + 12 \leq 5$ | |
| | A | \emptyset |
| | B | $\{n -10 \geq n \leq 4\}$ |
| | C | $\{n n \leq -4$ or $n \geq 10\}$ |
| D | $\{n n \leq -10$ or $n \geq 4\}$ | |

| | | |
|---|---|---|
| 8 | Point (6, -1) lies on the <u> (1) </u> boundary when $2y + 6 > 4$ is graphed. It is <u> (2) </u> of the inequality. | |
| | A | (1) dashed (2) <u>not</u> a solution |
| | B | (1) solid (2) <u>not</u> a solution |
| | C | (1) dashed (2) a solution |
| | D | (1) solid (2) a solution |



Chapter 5 Test – Linear Inequalities

Constructed Response: CALCULATOR ALLOWED

9

Use the compound inequality $0 \leq 4(5 - x) < 8$ to complete the following:

- a) Solve the compound inequality.

- b) In the space below, graph the solution set.



- c) Determine if the graph is a *union* or an *intersection*.

(/6 marks)

10

Use the absolute value inequality $\left| \frac{-3x-12}{3} \right| \geq 6$ to complete the following:

- a) Solve the absolute value inequality.

- b) In the space below, graph the solution set.



(/6 marks)

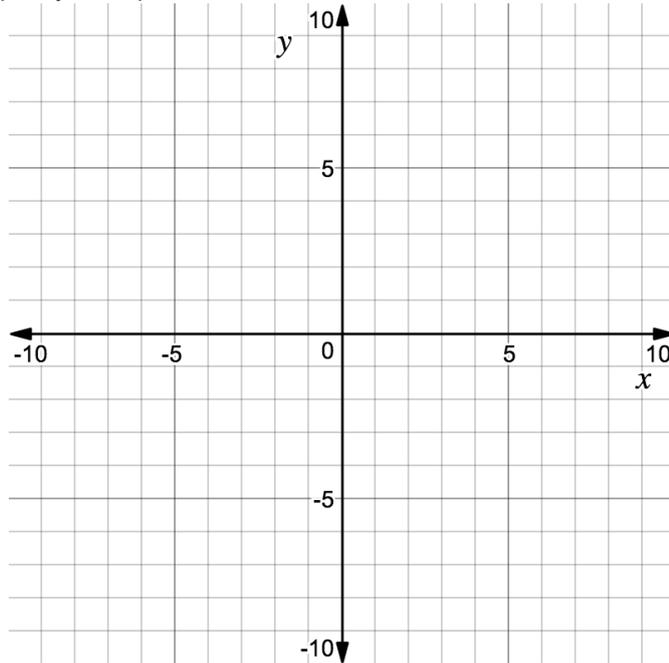


Chapter 5 Test – Linear Inequalities

11

a) Write $-2x + y < 2$ in slope-intercept form.

b) Graph the inequality from part a.



| | |
|----------------------|-------|
| Multiple Choice | /8 |
| Constructed Response | /17 |
| Total Marks | /25 |
| Percentage | /100% |

| | | | |
|-------|---|-----------|---|
| Grade | 8 | Lesson(s) | <p>Lesson 5-1: Solving Inequalities by Addition and Subtraction</p> <p>Lesson 5-2: Solving Inequalities by Multiplication and Division</p> <p>Lesson 5-3: Solving Multi-Step Inequalities</p> <p>Lesson 5-4: Solving Compound Inequalities</p> <p>Lesson 5-5: Inequalities Involving Absolute Value</p> <p>Lesson 5-6: Graphing Inequalities in Two Variables</p> |
|-------|---|-----------|---|



Chapter 5 Test – Linear Inequalities

Answer Key

Multiple Choice

| | |
|----|---|
| Q1 | D |
| Q2 | A |
| Q3 | C |
| Q4 | D |
| Q5 | B |
| Q6 | B |
| Q7 | A |
| Q8 | A |

Constructed Response

9

- a) Two marks should be awarded for $3 < x \leq 5$.
If the student states $x \leq 5$ (or $5 \geq x$), award one mark.
If the student states $x > 3$ (or $3 < x$), award one mark.
- b) One mark should be awarded for an open circle on 3.

One mark should be awarded for a closed circle on 5.

One mark should be awarded for shading in between 3 and 5.
*If the student shades to the left of 3 and/or to the right of 5, do **not** award the mark.*



- c) One mark should be awarded for stating *intersection*.

6 marks



Chapter 5 Test – Linear Inequalities

10

- a) One mark should be awarded if the student considers both cases, explicitly writing the two inequalities that satisfy each case.

$$1. \frac{-3x-12}{3} \geq 6 \text{ OR } -x - 4 \geq 6$$

$$2. \frac{-3x-12}{3} \leq -6 \text{ OR } -x - 4 \leq -6$$

If the student writes any other equivalent inequalities, still award the mark.

Two marks should be awarded for “ $x \leq -10$ or $x \geq 2$.”

If the student states $-10 \geq x$, award one mark.

If the student states $2 \leq x$, award one mark.

- b) One mark should be awarded for a closed circle on -10.

One mark should be awarded for a closed circle on 2.

One mark should be awarded for shading *to the left of -10 and to the right of 2*.

*If the student shades in between -10 and 2, do **not** award the mark.*



6 marks

11

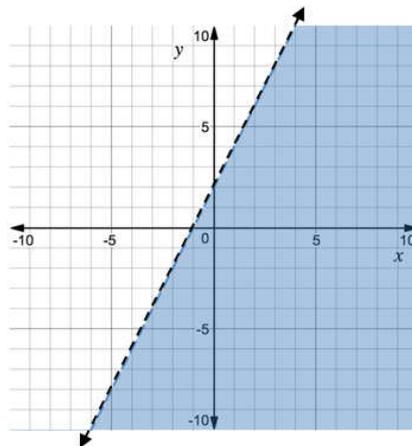
- a) One mark should be awarded for slope-intercept form of $y < 2x + 2$.

- b) One mark should be awarded for a y -intercept of (0, 2).

One mark should be awarded for an x -intercept of (-1, 0).

One mark should be awarded for a dashed line.

One mark should be awarded for shading below the line.



5 marks



Chapter 5 Test – Linear Inequalities

Data Analysis Information

Use the information below to help you determine which student learning outcomes are not being met by the majority of your students. This will help you make determinations about re-teaching, spiraling content not mastered, and implementing other interventions without interrupting the scheme of work.

| Question | Lesson | Student Learning Outcome(s) |
|----------|------------|---|
| 1 | 5-1 | Solve linear inequalities by using addition. |
| 2 | 5-1 | Solve linear inequalities by using subtraction. |
| 3 | 5-2 | Solve linear inequalities by using multiplication. |
| 4 | 5-2 | Solve linear inequalities by using division. |
| 5 | 5-3 | Solve linear inequalities involving more than one operation. |
| 6 | 5-4 | Solve compound inequalities containing the word <i>and</i> , and graph their solution set. |
| 7 | 5-5 | Solve and graph absolute value inequalities. |
| 8 | 5-6 | Solve inequalities by graphing. |
| 9 | 5-1 to 5-4 | Solve linear inequalities by using addition. Solve linear inequalities by using subtraction. Solve linear inequalities by using multiplication. Solve linear inequalities by using division. Solve linear inequalities involving more than one operation. Solve linear inequalities involving the Distributive Property. Solve compound inequalities containing the word <i>and</i> , and graph their solution set. |
| 10 | 5-5 | Solve and graph absolute value inequalities. |
| 11 | 5-6 | Graph linear inequalities on the coordinate plane. |