

CH. 9 Inequalities Assessment

Name Answer Key PER _____ DATE _____

AREIB3	AREID12	ACED1

Computation

4	3	2	1
Response has no recall errors, <i>minimal</i> procedural errors* and no conceptual errors**	Response has no recall errors, minimal procedural errors and <i>minimal</i> conceptual errors	Response has no recall errors, but has several procedural errors <u>OR</u> several conceptual errors	Recall errors exist <u>OR</u> Steps taken are not related to problem <u>OR</u> Response left blank

Written Responses

4	3	2	1
Response is written in a complete sentence and uses appropriate academic vocab	Response is written in a complete sentence, and minimal errors exist in use of academic vocab	Response is not written in a complete sentence <u>OR</u> no academic vocab	Concept of response is not related to problem <u>OR</u> Response is left blank

*Procedural errors are mistakes made in the math

**Conceptual errors are mistakes made in the steps one take

1. (AREIB3) Show your work neatly and circle the correct answer(s).

Solve for x.

A. $x \leq -\frac{23}{4}$

B. $x \geq -\frac{23}{4}$

C. $x \leq \frac{13}{4}$

D. $x \geq \frac{13}{4}$

$$2x - 6(x - 3) \geq 5$$

$$2x - 6x + 18 \geq 5$$

$$-4x + 18 \geq 5$$

$$\begin{array}{r} -18 \\ \hline -4x \geq -13 \end{array}$$

$$\begin{array}{r} -4x \geq -13 \\ \hline -4 \quad -4 \\ x \leq \frac{13}{4} \end{array}$$

$$x \leq \frac{13}{4}$$

2. (ARIEB3) Show your work neatly, box the resulting inequality and then draw its graph.

Solve the inequality for n. Show your work.

$$3(2 - 4n) \geq 6n - 2(5 + 3n)$$

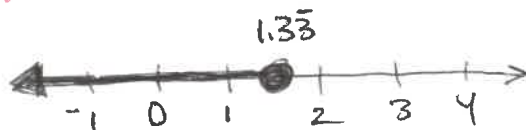
$$6 - 12n \geq 6n - 10 - 6n$$

$$\begin{array}{r} 6 - 12n \geq -10 \\ \hline -6 \quad -6 \end{array}$$

$$\begin{array}{r} -12n \geq -16 \\ \hline -12 \quad -12 \end{array}$$

$$n \leq \frac{16}{12} \div 4 = \frac{4}{3}$$

$$n \leq \frac{4}{3}$$



3. (AREID12) Explain your answer choice and cite two specific pieces of evidence in your explanation.

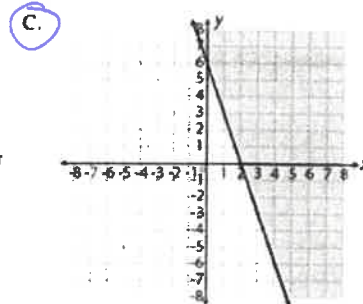
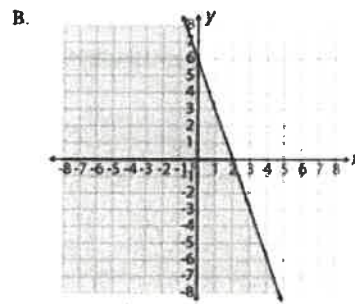
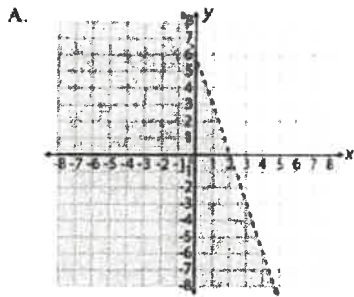
Which graph shows the solution to this inequality?

$$6x + 2y \geq 12$$

$$6x + 2y \geq 12$$

$$-6x \quad -6x$$

$$\frac{2y}{2} \geq \frac{-6x + 12}{2} \rightarrow y \geq -3x + 6$$



Graph C matches the inequality $6x + 2y \geq 12$ since its symbol tells us the line should be solid. Furthermore, the symbol tells us that the graph must be shaded above the line since it's "greater than or equal to".

4. (AREID12) Graph the solution set for the system of inequalities below.

$$\begin{cases} 4x + 3y \leq -6 \\ -2x + 3y \geq 12 \end{cases}$$

$$4x + 3y \leq -6$$

$$-4x \quad -4x$$

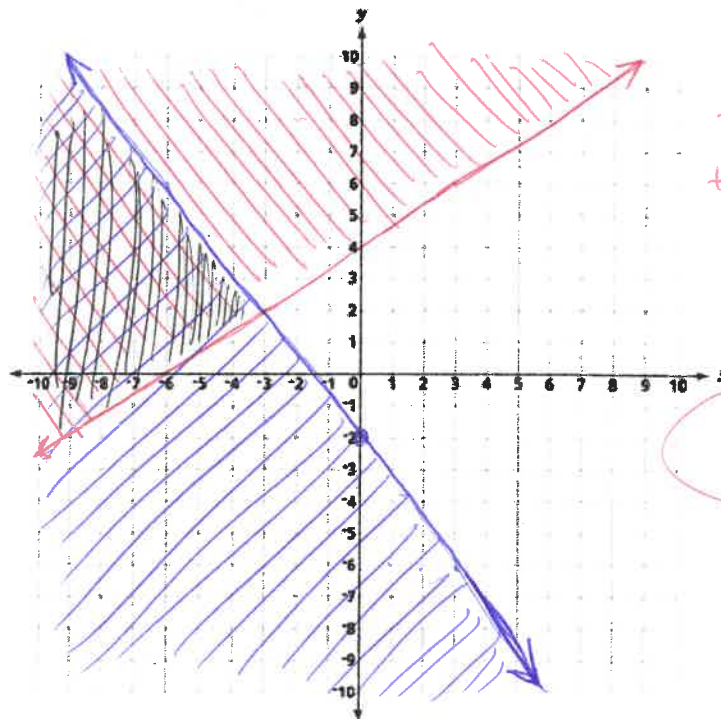
$$\frac{3y}{3} \leq \frac{-4x - 6}{3}$$

$$y \leq \frac{-4x - 6}{3}$$

Test (0,0)

$$0 \leq \frac{-4(0) - 6}{3}$$

$$0 \leq -2 \quad \text{Not true!}$$



$$-2x + 3y \geq 12$$

$$+2x \quad +2x$$

$$\frac{3y}{3} \geq \frac{2x + 12}{3}$$

$$y \geq \frac{2}{3}x + 4$$

Test (0,0)

$$0 \geq \frac{2}{3}(0) + 4$$

$$0 \geq 4 \quad \text{Not true!}$$

5. (ACED1) Write and solve an inequality that models this situation. Then, write your answer in a complete sentence in the space below.

A dance squad needs at least \$800 to buy new dance outfits.

- They have saved \$350 already. ← starting value
- They are selling tickets to a dance performance for \$8 each. ← rate!

They need to sell x tickets to have enough money to buy the new dance outfits.

x = number of tickets they need to sell

$$8x + 350 \geq 800$$

$$\begin{array}{r} -350 \\ -350 \end{array}$$

$$\frac{8x}{8} \geq \frac{450}{8} \rightarrow x \geq 56.25$$

They need to sell at least 57 tickets to have enough money to buy new dance outfits.

6. (ACED1) Write and solve an inequality that models this situation. Then, write your answer in a complete sentence in the space below.

Sam makes tote bags for a school fundraiser.

- The fixed costs for making the bags is \$30. ← starting value
- The cost of the materials for each bag is \$8.50. ← rate!
- Sam can spend less than a total of \$200 on the tote bags.

$$8.50t + 30 < 200$$

$$\begin{array}{r} -30 \\ -30 \end{array}$$

$$8.50t < 170$$

$$\frac{8.50t}{8.50} < \frac{170}{8.50}$$

$$t < 20$$

t = # of tote bags Sam can make.

Sam can make less than 20 tote bags after spending less than \$200