KPBSD Algebra 1 Name: _____

Semester 2 Final

Scientific calculators are allowed. Graphing calculators are NOT allowed.
No reference materials (cell phones, notes, book, notecards, or formulas) are allowed during the test.
You must show all your work to receive full credit. Write your answer on the given line.

Chapter 5

(A.REI.6 DOK 2) *3 points*

1. Solve the system of linear equations using the substitution method. Write your answer as an ordered pair.

$$\begin{cases} x = -4 - 2y \\ 3x - 4y = 18 \end{cases}$$

1. _____

(A.REI.6 DOK 3) *4 points*

2. Solve the system of linear equations using the substitution method. Write your answer as an ordered pair.

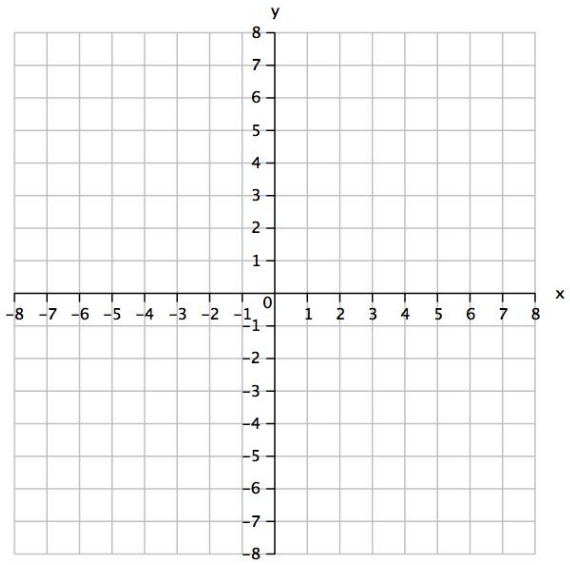
$$\begin{cases} 3x - y = 11 \\ 5y - 7x = 1 \end{cases}$$

2. _____

(A.REI.6 DOK 2) *3 points*

3. Graph the system by graphing.
Write your answer as an ordered pair.

$$\begin{cases} y = \frac{1}{2}x + 2 \\ y = -x - 1 \end{cases}$$

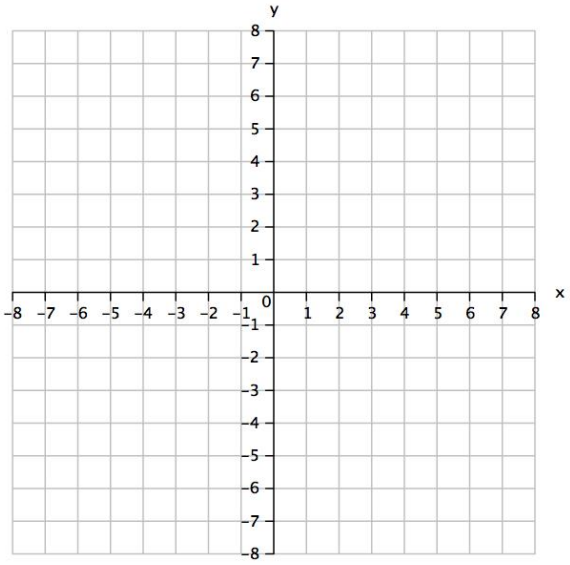


3. _____

(A.REI.6 DOK 3) *4 points*

4. Graph the system by graphing.
Write your answer as an ordered pair.

$$\begin{cases} x + y = 3 \\ y = -2x - 1 \end{cases}$$



4. _____

(A.REI.5 DOK 1) *3 points*

5. Solve the system of linear equation using the elimination method. Write your answer as an ordered pair.

$$\begin{cases} x + y = 12 \\ x - y = 2 \end{cases}$$

5. _____

(A.REI.5 DOK 2) *4 points*

6. Solve the system of linear equation using the elimination method. Write your answer as an ordered pair.

$$\begin{cases} 5x + y = 0 \\ 5x + 2y = 30 \end{cases}$$

6. _____

(A.REI.5 DOK 3) *4 points*

7. Solve the system of linear equation using the elimination method. Write your answer as an ordered pair.

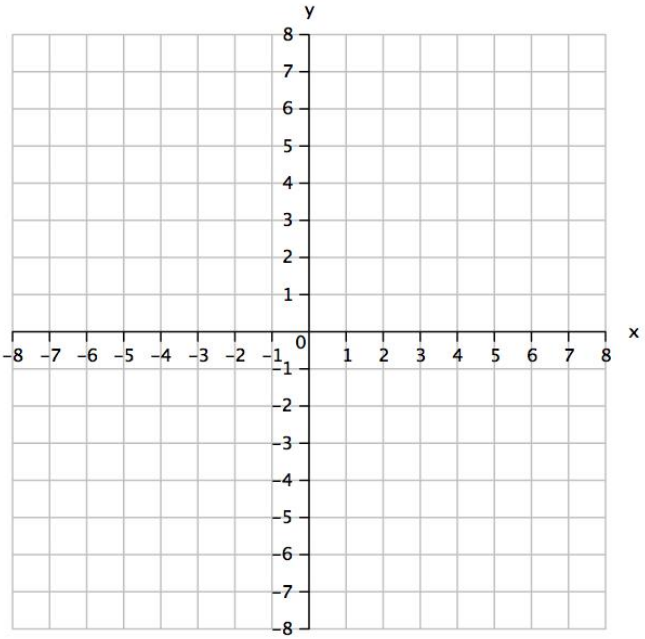
$$\begin{cases} 2x + 4y = 10 \\ 3x + 2y = 17 \end{cases}$$

7. _____

(A.REI.12 DOK 2) *3 points*

8. Graph the inequality.

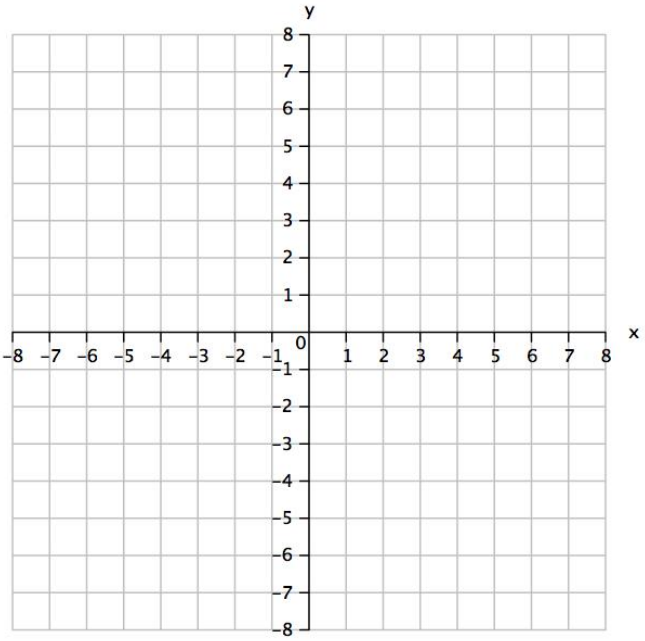
$$y > 3x - 4$$



(A.REI.12 DOK 2) *6 points*

9. Graph the system of inequalities.

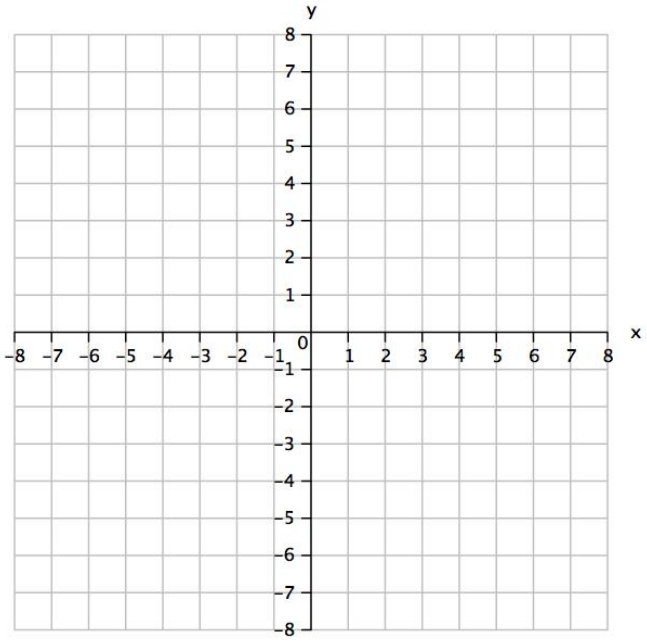
$$\begin{cases} y > \frac{1}{2}x - 2 \\ y \leq -2x + 3 \end{cases}$$



(A.REI.12 DOK 3) *8 points*

10. Graph the system of inequalities.

$$\begin{cases} 2x + y \leq 3 \\ x - 2y < 4 \end{cases}$$



Chapter 6

(A.APR.1 DOK 2) *3 points*

11. Simplify.

$(3b^2 - 2b + 1) - (b^2 - 5b + 4)$

11._____

(A.APR.1 DOK 3) 4 *points*

12. Simplify.

$7\ (2m^2 - 8m) + m(8m + 2) - (3m - 5)$

12. _____

(A.APR.1 DOK 2) *3 points*

13. Simplify.

$5x(7x^2 - x + 4)$

13. _____

(A.APR.1 DOK 3) *7 points*

14. Simplify.

$(3x - 2)(4x^2 + 3x - 8)$

14. _____

(N.RN.2 DOK 1) *2 points*

15. Rewrite the expression with a rational exponent:

$\sqrt[3]{x^2}$

15. _____

(N.RN.2 DOK 1) *2 points*

16. Rewrite the expression in radical form:

$y^{\frac{4}{5}}$

16. _____

(N.RN.2 DOK 2) *3 points*

17. Rewrite the expression in radical form:

$(2x^2)^{\frac{2}{5}}$

17. _____

(N.RN.2 DOK 3) *4 points*

18. Simplify and write the answer with rational exponents:

$\sqrt[4]{x^2y} \cdot \sqrt[4]{xy}$

18. _____

(N.RN.2 DOK 3) *4 points*

19. Simplify and write the answer in radical form:

$(2x)^{\frac{1}{4}} \cdot (2x)^{\frac{1}{2}}$

19. _____

Chapter 7

(A.SSE.2 DOK 1) *2 points*

20. Factor:

$6r^2 - 4r$

20._____

(A.SSE.2 DOK 2) *3 points*

21. Factor:

$x^2 + 4x - 12$

21._____

(A.SSE.2 DOK 2) *3 points*

22. Factor:

$x^2 - 16$

22._____

(A.SSE.2 DOK 3) *4 points*

23. Factor:

$5x^2 - 14x + 8$

23._____

(A.SSE.2 DOK 3) *5 points*

24. Factor:

$3x^3 + 6x^2 - 4x - 8$

24._____

Chapter 8

(A.REI.4b DOK 2) *3 points*

25. Solve by taking square roots:

$2x^2 = 72$

25._____

(A.REI.4b DOK 2) *4 points*

26. Solve by factoring:

$x^2 - 14x + 45 = 0$

26._____

(A.REI.4b DOK 3) *5 points*

27. Solve using the quadratic formula:

$2x^2 - 7x + 3 = 0$

27._____

(A.REI.4b DOK 3) *6 points*

28. Solve by completing the square:

$2x^2 - 20x + 18 = 0$

28._____

Chapter 10

Use the data to answer the following questions 30 – 32.

The finishing times of runners in a 5K race, to the nearest minute, are given.

Finishing Times of Runners in a 5K Race (in minutes)				
18	30	17	17	31
32	19	24	28	22

(S-ID.3 DOK 1) *4 points*

29. Find the mean, median, mode and the range.

Mean: _____

Median: _____

Mode: _____

Range: _____

(S-ID.3 DOK 2) *3 points*

30. A reporter asks you, "What is the typical finishing time for this race?" Which measure of central tendency would you answer: mean or mode? Explain.

(S-ID.3 DOK 3) *4 points*

31. Grandma's unofficial time was 68 minutes in the 5K race. If her time was included in the data above, how would this effect the mean, median, mode and range?
Choose one of the following for each: *greatly decreases, slightly decreases, no change, slightly increases, greatly increases*

Mean: _____

Median: _____

Mode: _____

Range: _____