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Name: _____

Algebra 1 – Semester 1
Final Exam Review

Date: _____ Per # ____

NOTES/WORK:

1) What is the **additive inverse** (opposite) of $-\frac{2}{3}$?

a) $-\frac{3}{2}$ **b)** $-\frac{2}{3}$ **c)** $\frac{2}{3}$ **d)** $\frac{3}{2}$

2) What is the **additive inverse** (opposite) of $7x$?

3) What is the **solution** to the equation $\frac{30}{7}x = 4$?

a) $x = \frac{15}{14}$ **b)** $x = \frac{14}{15}$ **c)** 16 **d)** -16

4) **Solve** for x: $-\frac{24}{5}x = 3$

5) **Evaluate** x^4 for $x = 3$.

a) 7 **b)** 12 **c)** 34 **d)** 81

6) **Evaluate** h^3 for $h = -3$.

7) What is the **simplified form** of $5x + 8 - (-4x) + (-10)$?

a) $9x - 18$ **b)** $9x - 2$ **c)** $x - 18$ **d)** $x - 2$

8) Simplify by **combining like terms** $-7x - 4 - (-2x) + (-6)$

9) Which equation is **equivalent** to $9x - 3(x - 2) = 12$?

a) $9x - 3x - 2 = 12$ **b)** $9x - 3x + 2 = 12$

c) $9x - 3x - 6 = 12$ **d)** $9x - 3x + 6 = 12$

10) Describe the **first step** in solving: $-6x - 5(x - 3) = 4$?

11) **Solve:** $5(4t - 6) = 3(9t - 3)$

a) $t = -3$ **b)** $t = 3$ **c)** $t = -\frac{3}{7}$ **d)** $\frac{3}{7}$

12) **Solve:** $6x + 3(x - 4) = 4x - (x - 12)$

13) Two cars leave from the same place at the same time traveling in opposite directions. The faster car travels 50 miles per hour while the slower car travels 40 miles per hour. **In how many hours** will the cars be exactly 300 miles apart?

a) $\frac{1}{3}$ hour b) $1\frac{1}{3}$ hours c) 3 hours d) $3\frac{1}{3}$

14) Two airplanes leave from the same airport at the same time traveling in opposite directions. One airplane flies at a rate of 120 miles per hour while the other airplane flies at a rate of 200 miles per hour. **In how many hours** will the planes be exactly 640 miles apart?

15) What is the ***y*-intercept** of the line passing through the points (2, 7) and (-1, 1) ?

a) $b = 1$ b) $b = 2$ c) $b = 3$ d) $b = 7$

16) What is the ***y*-intercept** of the line passing through the points (-4, -2) and (4, -6) ?

17) Which ordered pair is a **solution** to the equation $y = 5x + 2$?

a) (-1, -3) b) (-3, -1) c) (2, 0) d) (-2, 0)

18) Find the value of the ***y*-coordinate** of $y = -4x - 6$ for $x = -2$.

19) What is the first **incorrect** step in the solution shown below?

Solve: $-3(x + 4) + 5 = -8$

Step 1: $-3x - 12 + 5 = -8$

Step 2: $-3x - 17 = -8$

Step 3: $-3x = 9$

Step 4: $x = -3$

a) Step 1 b) Step 2 c) Step 3 d) Step 4

20) What is the first **incorrect** step in the solution shown below?

Solve: $5(x - 2) - 3 = 7$

Step 1: $5x - 10 - 3 = 7$

Step 2: $5x - 13 = 7$

Step 3: $5x = -20$

Step 4: $x = -4$

21) What is the **solution** to $\frac{2}{3}x+5=\frac{1}{2}x+4$?

a) $x=-1$ b) $x=1$ c) $x=6$ d) $x=-6$

22) **Solve** for x: $\frac{1}{6}x-7=\frac{3}{4}x+14$

23) What is the **solution** to the inequality $8-x>5$?

a) $x>-3$ b) $x<-3$ c) $x>3$ d) $x<3$

24) What is the **solution** to $-4-3x<5$?

25) **Evaluate:** $-x^2$ for $x=5$

a) -10 b) 10 c) -25 d) 25

26) **Evaluate:** $-x^2$ for $x=4$

27) Which inequality is equivalent to $9x-8<2x+6$

a) $7x<-14$ b) $7x<14$ c) $7x>-14$ d) $7x>14$

28) Solve for x: $8x-3>4x+5$.

29) What is the solution to the equation: $|3x-6|=9$?

a) { -1 } b) { 5 } c) { -1, 5 } d) no solution

30) Solve for x : $4|2x-8|=16$

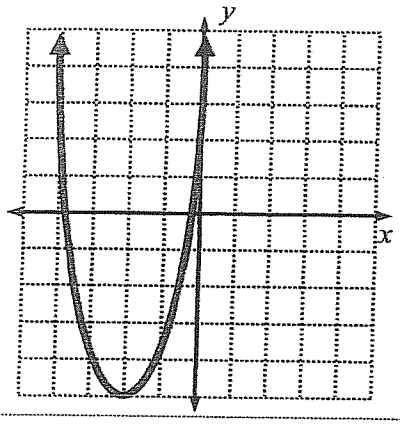
31) If your cell phone plan costs \$30 each month and \$0.15 for each minute, m, which equation would determine how many minutes you used in December if your total bill was \$35.25 ?

a) $30m+0.15=35.25$ b) $30.15m=35.25$

c) $0.15m+30=35.25$ d) $0.15m+30m=35.25$

32) **Write an equation to represent:** If your cell phone plan costs \$25 each month and \$0.45 for each minute, m, how many minutes you used in December if your total bill was \$48.76 ?

33) What is the **range** for the graph below?



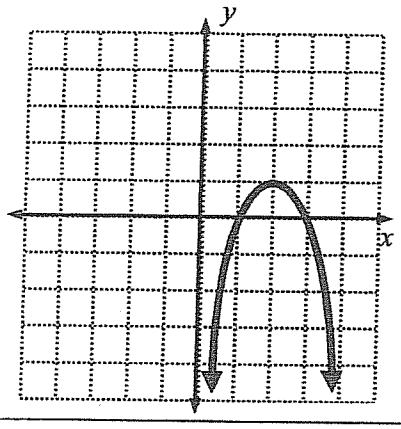
a) $y \geq -5$

b) $y \leq -5$

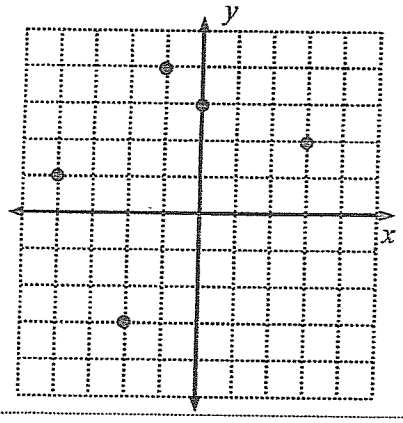
c) $-5 \leq y \leq 5$

d) all real numbers $\Re$

34) What is the **range** for the graph below?



35) What is the **domain** of the function shown below?



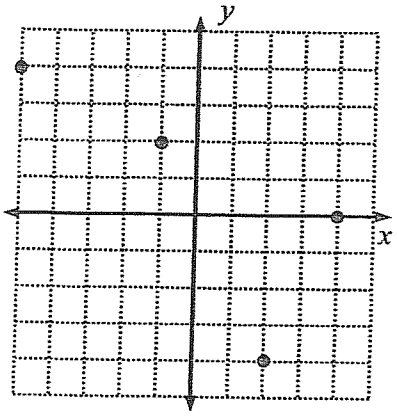
a) $-4 \leq x \leq 3$

b) { -4, -2, -1, 0, 3 }

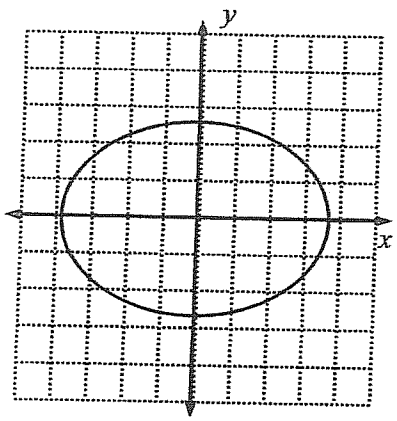
c) $-3 \leq x \leq 4$

d) { -3, 1, 2, 3, 4 }

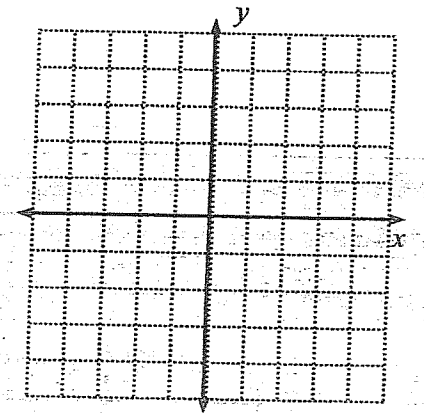
36) What is the **domain** of the function shown below?



37) Explain why the graph below is NOT a function.

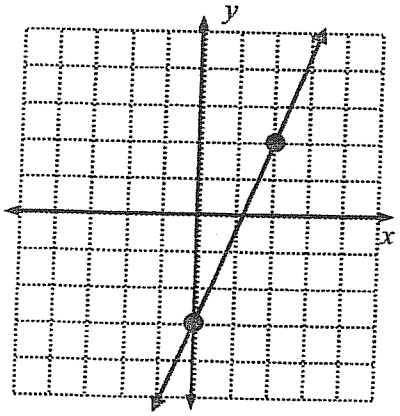


38) Sketch an example of a graph that DOES represent a function.



39) Write the ordered pair of numbers that represent the x and y-intercepts of the line given by $-3x + 2y = -12$.

40) Write the equation of the line graphed below.

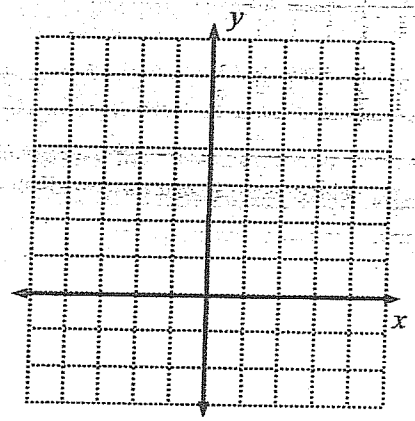


41) Explain how to find the slope and y-intercept of a line given by an equation is standard form. Then find the slope and y-intercept of $3x + 2y = 5$.

42) What is the solution to the system of equations? (Solve by **elimination** and then by **graphing**)

$8x + 4y = 12$

$-4x - 2y = -12$



43) Solve this system by the substitution method.

$3x + y = 16$ $\qquad$ $y = x + 8$

44) For each pair of line, determine if the lines are parallel, perpendicular, or neither.

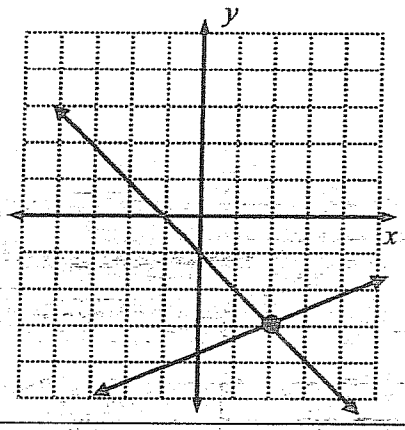
a) $y=\frac{3}{5}x+4$ and $y=-\frac{5}{3}x-2$

b) $y=\frac{4}{3}x-6$ and $y=\frac{3}{4}x+7$

c) $y=\frac{1}{2}x-3$ and $y=-\frac{1}{2}x+3$

d) $y=\frac{2}{3}x-5$ and $y=\frac{2}{3}x+5$

45) What is the solution to the system of equations shown below?



46) There were 400 people at a football game. Student tickets cost $4 and tickets cost $6. If the total amount earned at the ticket booth was $1880, how many students and how many adults paid to see the game?

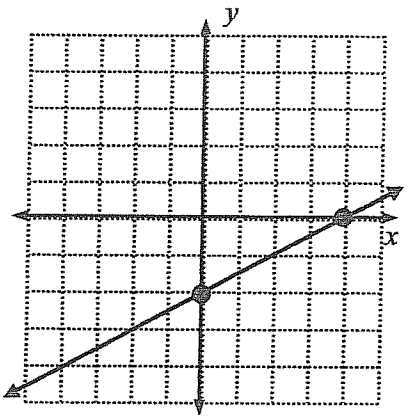
Set up: **Let s = # of students**
a = # of adults

$s+a=$ _____

$4s+6a=$ _____

Solve by Elimination or Substitution!

47) What are the x and y-intercepts of the graph shown below?



48) What is the equation of the line in problem #47? **(Hint: Find m and b)**

49) Write the equation of the line that passes through the point (2, 5) and has a slope of $-\frac{3}{2}$.

Hint: $y-y_1=m(x-x_1)$

50) Graph the inequality $y>2x-3$.