

Name: _____

Algebra II/Trig Summer Practice Packet

This packet is to help you keep up the skills that you already have. These are the skills that you need to have mastery of in order to be successful in Algebra 2/Trig. Please note that this is a practice packet only - it will not be collected or graded in any way.

No calculator unless stated.

1. A. What is a rational number? B. What is an irrational number?
2. Give an example of:
A. A whole number B. An integer C. A rational number D. An irrational number
3. Name the property.
A. $-8+8=0$ B. $(3\cdot 5)\cdot 10=3\cdot(5\cdot 10)$ C. $7\cdot 9=9\cdot 7$ D. $12\cdot 1=12$
E. $(9+2)+4=9+(2+4)$ F. $2(5+11)=2\cdot 5+2\cdot 11$ G. $6\cdot \frac{1}{6}=1$ H. $9+0=9$
4. What's the difference of 9 and -3 ? 5. What's the quotient of $\frac{1}{7}$ and $\frac{2}{5}$?
6. Evaluate the expression for the given value.
A. x^2+5-x when $x=-5$ B. $-x^2-9$ when $x=-4$ C. $(3x)^2-7y^2$ when $x=-3$
 $y=2$
D. $\frac{2x+y}{3y+x}$ when $x=10$ and $y=6$ E. $\frac{4y-x}{3(2x+y)}$ when $x=-3$ and $y=3$
7. Evaluate $(-2)^5$.
8. Simplify the expression.
A. $14x^2+x-3x-18x^2$ B. $8(y-x)-2(x-y)$ C. $(x+y)^2$

9. What's the difference between an expression and an equation?

10. Solve the equation. Show your work.

A. $4x + 7 = 27$

B. $x - 30 = 6 - 2x$

C. $2x + 11 = 15 - 6x$

D. $4(-3x + 1) = -10(x - 4)$

E. $-4(3 + x) + 5 = 4(x + 3) - 14x$

F. $2x + 1 = 2x - 1$

11. Solve the equation. (you may use a calculator for C)

A. $\frac{1}{2}x - \frac{5}{3} = -\frac{1}{2}x + \frac{19}{4}$

B. $\frac{2}{3}x + \frac{1}{5} = 2x - \frac{3}{10}$

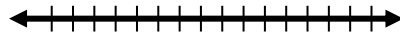
C. $25(x - 3) + 17x = 108(x + 15)$

12. Graph the inequality.

A. $x \geq 4$

B. $-4 < x \leq 4$

C. $x \geq 4$ or $x < -4$



13. Decide whether the number is a solution. Show why or why not.

A. $7x - 12 < 8$; 3

B. $-\frac{1}{3}x - 2 \leq -4$; -4

14. Solve the inequality. For part "C" you may use a calculator.

A. $5 - 2x \geq 27$

B. $5 + \frac{1}{3}x \leq 6$

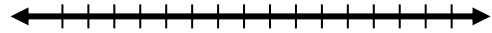
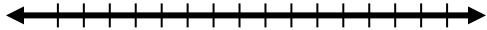
C. $4.7 - 2.1x > -7.9$

D. $5 - 5x > 4(3 - x)$

15. Solve and graph the compound inequality.

A. $-8 < \frac{2}{3}x - 4 < 10$

B. $x - 1 \leq 5$ or $x + 3 > 10$



16. The temperature yesterday ranged from 72° to 88° . Write the temperature as a compound inequality.

17. Your sister is selling Girl Scout cookies that cost \$2.80 a box. Your family bought 6 boxes. How many more boxes of cookies must your sister sell in order to collect \$154?

18. You want to have a bowling average of at least 205 for the three games you play tonight. On the first two games you scored 210 and 198. What is the minimum you must bowl on the third game to reach your goal?

19. You and a friend share the driving on a 300 mile trip. Your friend drives for 3 hours at an average speed of 52 miles per hour. How fast must you drive for the remainder of the trip if you want to reach your hotel in 3 more hours?

20. Solve for the indicated variable.

A. $V = LWH$; L

B. $V = \frac{1}{3}bh$; h

C. $4xy + y = w$; y

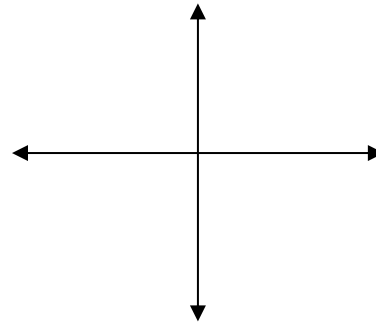
21. Put each equation into slope-intercept form.

A. $2x - 3y = 12$

B. $\frac{1}{3}x + \frac{1}{4}y = 6$

22. Label the following on the coordinate plane:

Quadrants
x-axis
y-axis
origin



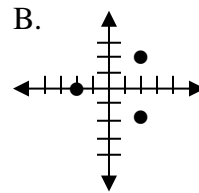
23. Define domain: _____

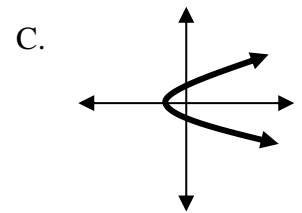
Define range: _____

24. Tell if each is a function. Explain your reasoning.

A.

x	-2	-2	0	2	2
y	1	-3	0	4	9





25. State the domain and range of each.

A.

x	-4	-3	-2	-1	0
y	2	1	0	-1	-2

Domain: _____

Range _____

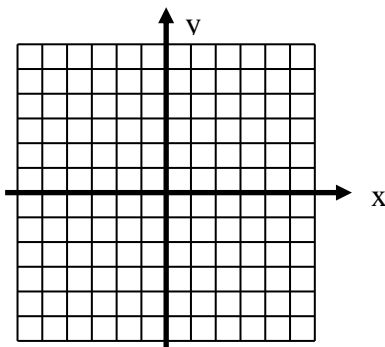
B. $\{(-3, 23), (-2, 1), (-1, -3)\}$

Domain: _____

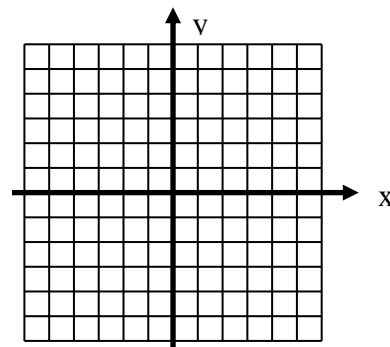
Range _____

26. Graph each function. List three ordered pairs that are solutions for each equation.

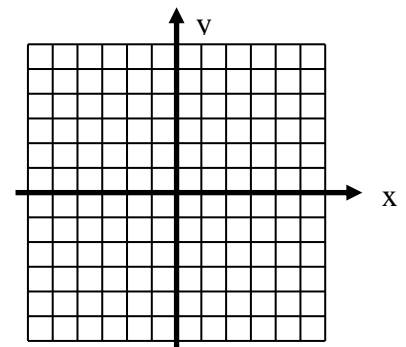
A. $y = x - 3$



B. $y = -5x + 1$



C. $y = 3x$



27. Find the slope.
A. (3, 2), (-4, 3) B. (-7, 3), (-2, 3) C. (-9, 8), (-9, 4)

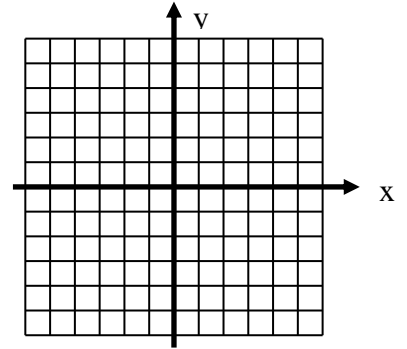
28. Is $f(x) = -3 + 4x$ a linear function? Explain.

29. Will the following lines be parallel, perpendicular, or neither? Explain.

- A. Line 1: through (-2, 6) and (2, 8)
Line 2: through (0, -4) and (5, -3)
- B. Line 1: through (4, -3) and (-8, 1)
Line 2: through (5, 11) and (8, 20)
- C. Line 1: through (1, 10) and (3, 7)
Line 2: through (9, 8) and (11, 5)

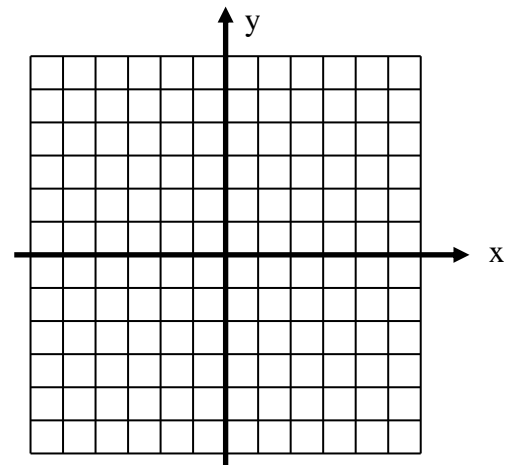
30. Find $f(3)$ if $f(x) = 8x + 2x^2$.

31. Put $4x + 3y = 6$ in slope-intercept form and graph.

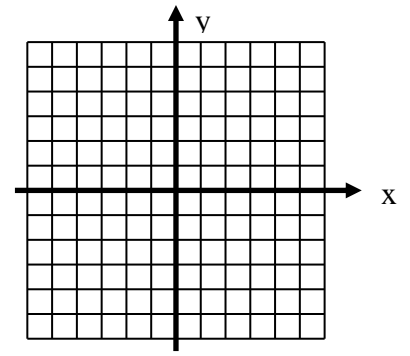


32. Sales for a firefighter's benefit dinner were \$1200. An adult's ticket cost \$6 and a child's ticket cost \$4.

- A. Write an equation in standard form to show the possible combinations of adult (x) and children's (y) tickets that could have been sold.
- B. Give the x-intercept and y-intercept of the equation.
- C. Graph this situation.



33. Graph $y = 2$.



34. Find k given a line passes through $(3, k)$ and $(k, -1)$ and has a slope of 3.

35. Find the zero of the function:

$$f(x) = \frac{1}{8}x + 2$$

36. Write the equation of the line in slope-intercept and standard forms, given $m = \frac{3}{5}$ and $b = 6$.

37. Write the equation of the line in slope-intercept form that passes through the given point and has the given slope.

A. $(0, 2)$, $m = 3$

B. $(3, -2)$, $m = -\frac{4}{3}$

38. Write the equation of the line in slope-intercept form that passes through the two points.

A. $(8, 5)$, $(11, 4)$

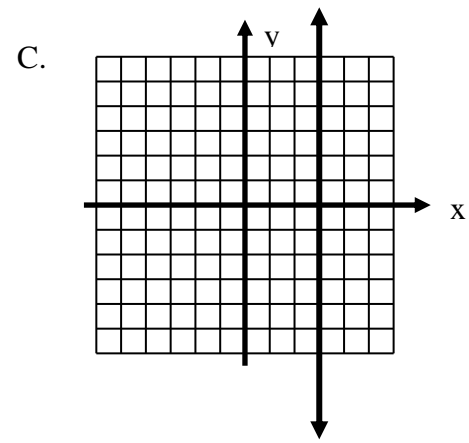
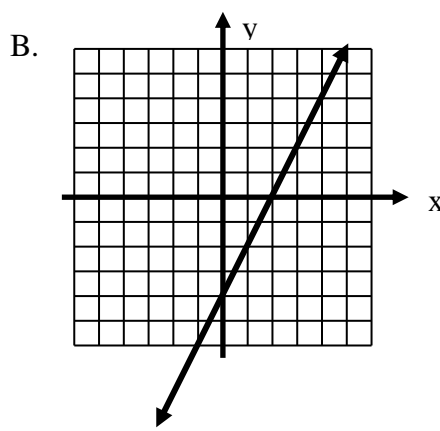
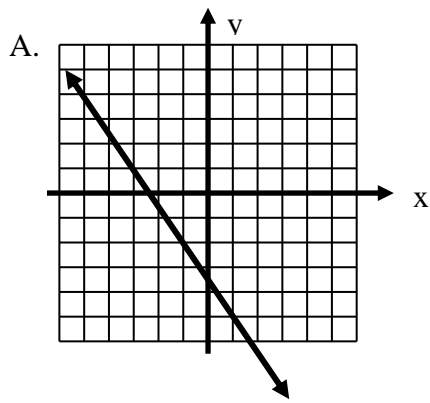
B. $(-2, 0)$, $(0, 6)$

39. Find the value of x so that the function $m(x) = 9x - 5$ has the value of -2 .

40. Write the equation of the line that passes through $(1, -1)$ and is parallel to the line $y = -\frac{1}{2}x + 6$.

41. Write the equation of the line that passes through $(3, -5)$ and is perpendicular to the line through $(1, 4)$ and $(3, -2)$.

42. Write the equation of the line.



For #43 and #44 the variables x and y vary directly. Write an equation that relates the variables. Then find y when $x = 3$.

43. $x = 4, y = 10$

Equation _____

y when $x = 3$ _____

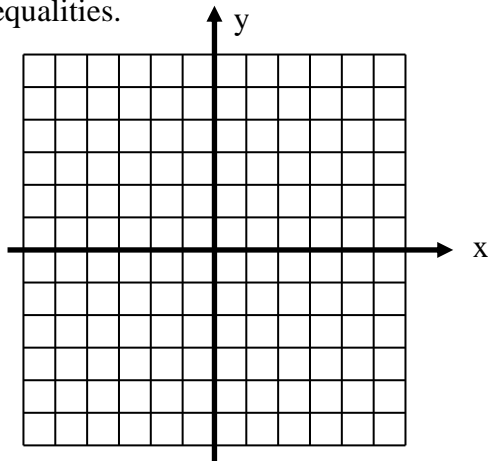
44. $x = 6, y = \frac{1}{2}$

Equation _____

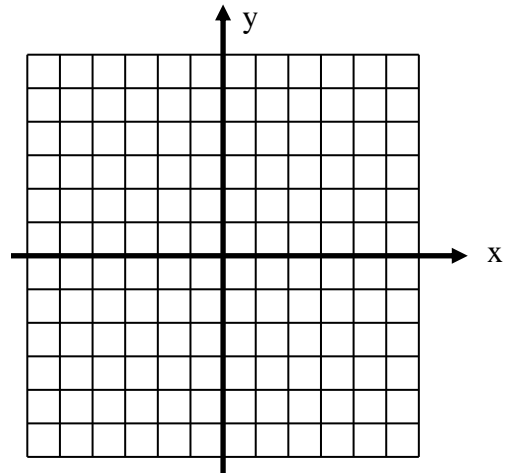
y when $x = 3$ _____

45. Graph the inequalities.

A. $-2y \leq 6$



B. $y < \frac{1}{3}x - 1$



46. Is $(2, -5)$ a solution to the system $7x + 4y = -6$? Explain by showing your work.
 $6x + 5y = -11$

For #47 and #48, tell if the following system represents lines that are parallel, coinciding, or intersecting. Explain how you know using slope-intercept form.

47. $8y - 6x = -16$
 $3x - 4y = 8$

48. $2x + y = 13$
 $x = y + 5$

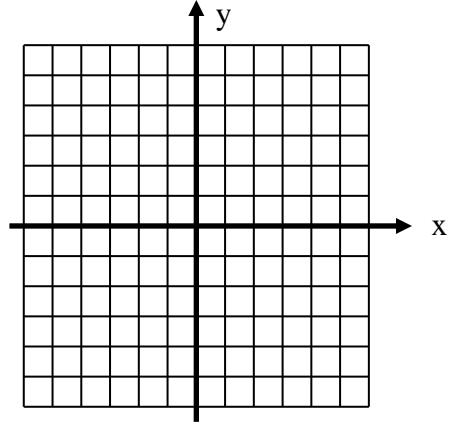
49. Solve the linear system represented by #48 by elimination and by substitution.

Elimination

Substitution

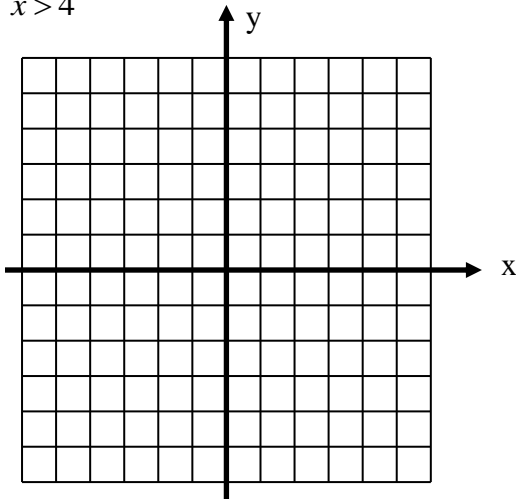
50. Solve the system by graphing:

$$\begin{aligned} x + y &= 1 \\ x - 3y &= 6 \end{aligned}$$

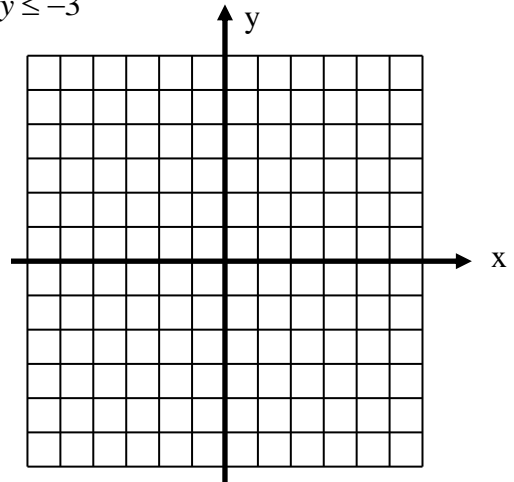


51. Solve each system of inequalities by graphing.

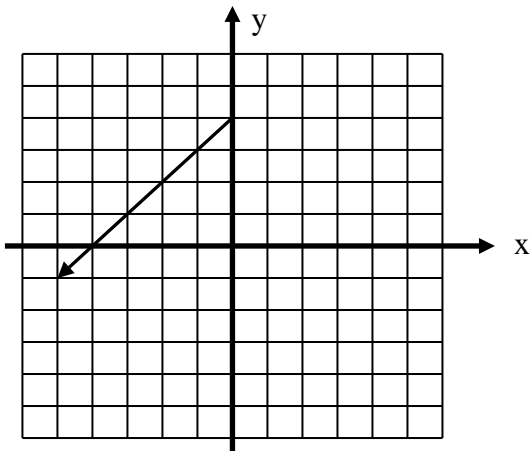
A.
$$\begin{aligned} y &\leq 5 \\ x &> 4 \end{aligned}$$



B.
$$\begin{aligned} y &> 3x - 4 \\ 2x + 3y &\leq -3 \end{aligned}$$



52. Analyze the following graph:



a. Function? YES NO

b. Domain: _____

c. Range: _____

d. $f(-3) =$ _____

e. What is x if $f(x) = 4$? _____

f. Equation _____

g. Zeros of the function? _____