Summer Packet

Algebra 1

Note: You should be completing this packet if you completed Algebra 1 this past school year.

Name _____

1. Follow the directions to complete the problems in the packet.
2. Show all your work.
3. Circle your final answer.

If you are having trouble, consult the following resources for help.

- **CPM:** http://cpm.org/students/extraPractice.htm (Under *Algebra Connections* - you can either download the full skill builders PDF or search by topic)
- **Brightstorm:** http://www.brightstorm.com/math (Look under the *Algebra* topics)
- **Coolmath:** http://www.coolmath.com/algebra/index.html (Look for topics under *Algebra Help Lesson Topics*)

1. Simplify the following fractions. If it's already in simplest form, state that.

   a. $\frac{72}{88}$

   b. $\frac{70}{42}$

2. Change the following from percent to decimal or decimal to percent

   a. 234%

   b. 0.34

3. Solve. (Without a calculator!)

   a. -14 – 23

   b. -9 – (-52)

   c. 12 + -13

   d. 72 ÷ -9

   e. -11 • -8

4. Simplify using the order of operations.

   a. $2^3 + (4 + 3 \times 2) - 18 \div 3$

   b. $6 + \frac{12}{3} + (4 \cdot 5 + 3) - 16 \div 4$

5. Simplify the following using the distributive property.

   a. $5(x + 7)$

   b. $-5(11x + 3y - 9)$

6. Simplify the following by combining like terms.

   a. $15a + 13c - 76b + 11c - 81a + 15b - 3c^2$

   b. $14xy - 43x + 18y^2 + 68$

7. Evaluate each expression using the following values; $x = 7$, $y = -2$, $z = 5$

   a. $6y + 2z$

   b. $2x + 3y - 4z$

8. Solve the following equations.

   a. $3b - 7 = 20$

   b. $3x + 11 = 7x - 21$

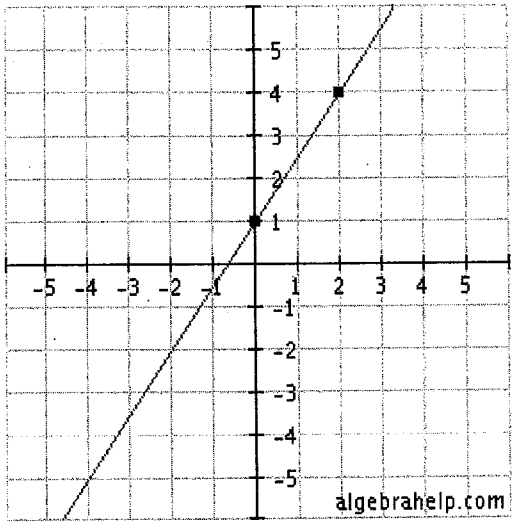
   c. $7x + 3 = -3x + 53$

   d. $3(-2x + 10) = 72$

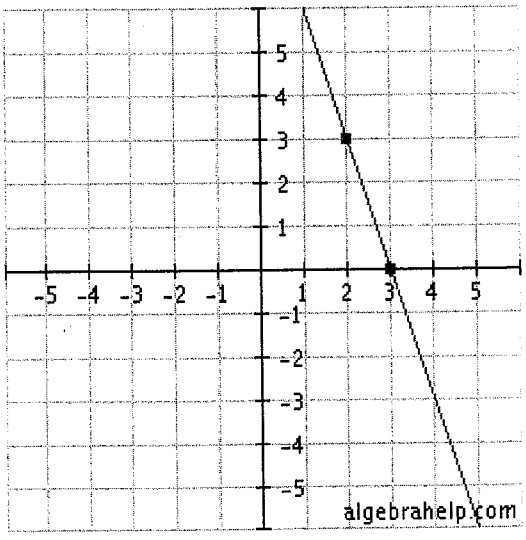
   e. $4(x - 2) - 3(x + 1) = 8x + 3$

9. Find the slope.

a.



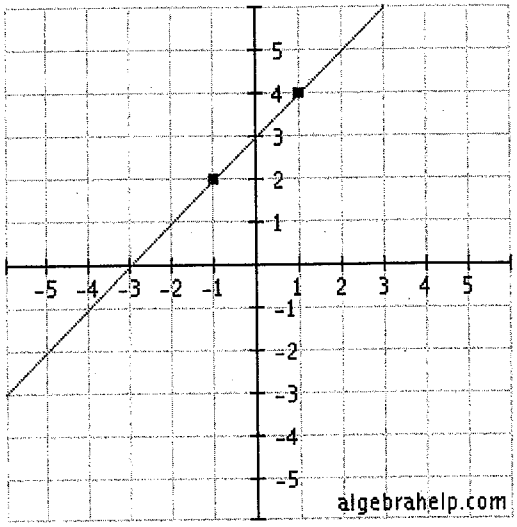
b.



c. (0, 5) and (2, 8)

10. Write the equation of the following lines (in y = mx + b form)

a.



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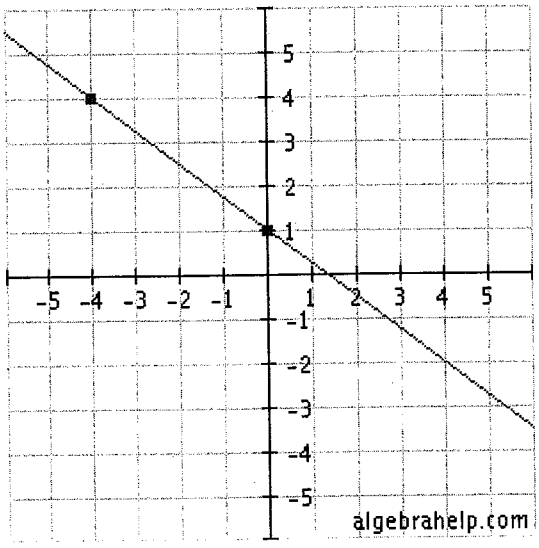
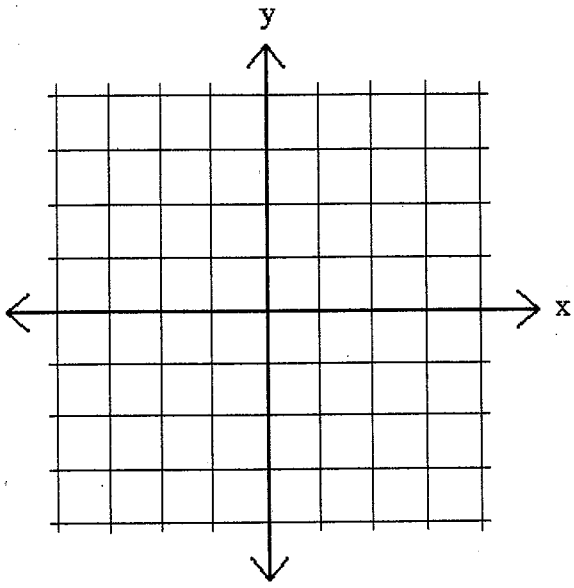
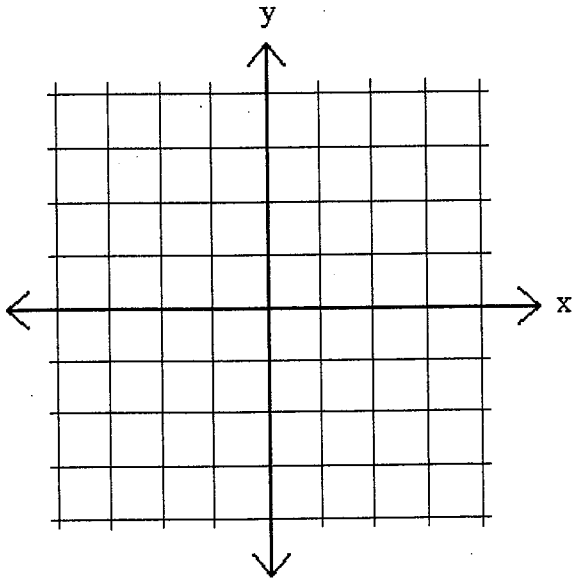


11. Graph the following equations.

a. $y = -\frac{4}{3}x + 3$



b. $y = 2x - 5$



12. Find the point intersection of the following equations.

a. $y = 3x - 2$
$2y + 8x = 24$

b. $8x + y = -16$
$-3x + y = -5$

13. Simplify the following expressions.

a. $11x^4y^6z^{13} \cdot -9x^3y^{16}z^9$

b. $(5a^6b^{11}c^{17})^3$

c. $\dfrac{-64x^{14}y^4}{8x^3y^2}$

d. $15x^{-4}y^5z^0$

14. Multiply the following polynomials.

a. $(2x + 5)(3x - 6)$

b. $(3x - 11)(7x + 4)$

c. $(5x - 8)(x^2 + 7x - 1)$

15. Factor each polynomial.

a. $x^2 + 5x + 6$

b. $3x^2 + 2x - 8$

16. Use the quadratic formula to x-intercepts of the following quadratic equations.

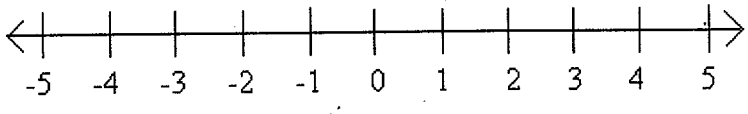
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

a. $y = x^2 + 4x - 7$

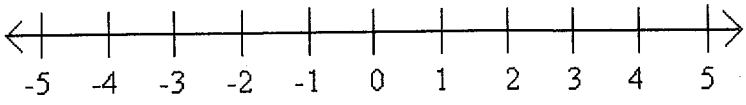
b. $y = 3x^2 - 2x - 11$

17. Solve and graph the following inequalities.

a. $4x - 11 > 1$

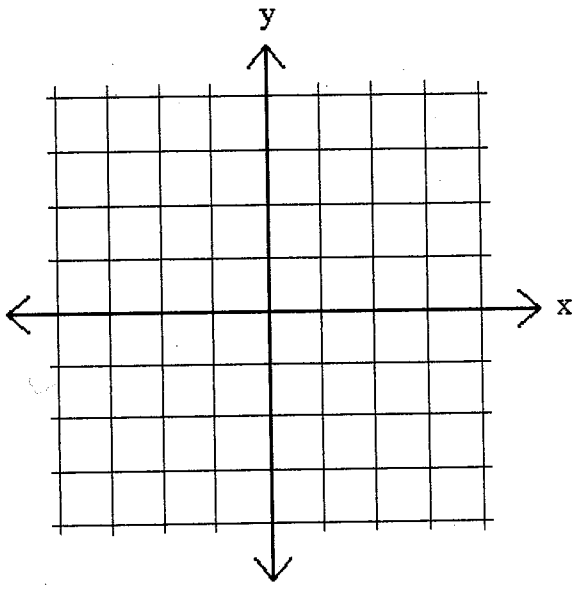


b. $5x + 8 \leq 3x + 2$

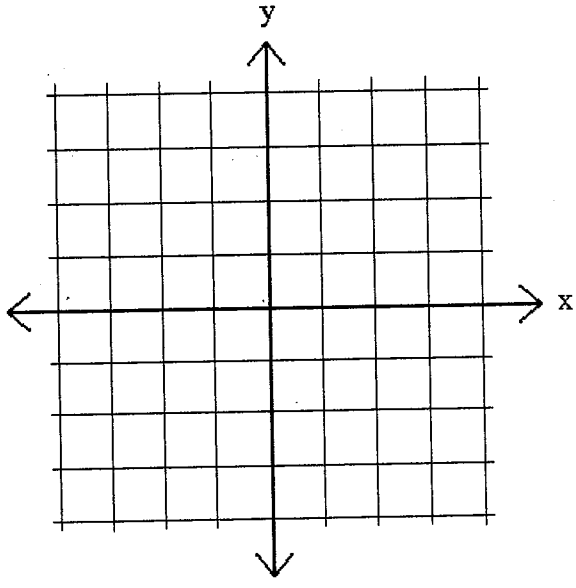


18. Graph the following inequalities.

a. $y < -3x + 2$



b. $y \geq \frac{2}{3}x - 4$



19. Simplify the following expressions.

a. $\dfrac{(x+7)(x-3)}{4x+8} \cdot \dfrac{4(x+2)}{(x+7)(x+5)}$

b. $\dfrac{5x+15}{6x+21} \div \dfrac{5(x-8)}{(2x+7)(x-8)}$

20. For the following relations. State whether that relation is a function and how you know. State the domain and range of the function.

a. {(0, 3), (5, -3), (0, 6), (-3, 2)}

b. {(-1, 4), (2, 7), (4, -3), (6, 5), (8, 2)}