

CP Algebra 2 - Summer Assignment

This assignment is to help you keep your math skills over the summer break. The assignment consists of math concepts you were taught so you should make every effort to complete the assignment on your own. YOU WILL BE TESTED ON THE CONCEPTS WITHIN THE FIRST TWO WEEKS OF SCHOOL. All answers will be posted during the last week of August but bring your work to school during the first week of school. Your math teacher will review and answer any questions you may have. Use a calculator only where indicated.

TUTORIAL HELP SITES: if you have difficulty, the following websites provide tutorials and videos. These correspond to our Algebra I textbook. Look at chapters/units 3-10.

1. http://jmap.org/JMAP_INTEGRATED_ALGEBRA_PEARSON_RESOURCES.htm

2. <http://rpd.net/show.php?type=math&cat=224&lvl=High+School>

videos for #2 are in this link: <http://rpd.net/videos-math.html>

additional notes: <http://rpd.net/algebra-lessons.html>

3. <http://www.ixl.com/>

4. <https://www.khanacademy.org/> (videos)

1. The formula $S = \sqrt{30fd}$ relates the speed S in miles per hour a car was traveling to the length d in feet that the car skidded when brakes were applied. The variable f is the coefficient of friction, which varies depending on the road surface and the condition of the tires. Name all number sets that contain the value of S for $f = 0.5$ and $d = 63$? (select from this list: natural, whole, integer, rational, irrational, real numbers)
2. The expression $-16t^2 + 1800$ models the height of an object t seconds after it has been dropped from a height of 1800 feet. Find the height of an object after falling for 4.8 seconds.
3. **Evaluate the expression for the given value of the variable(s).**

$$\frac{4(3k - 6)}{1 + k}; k = -2$$

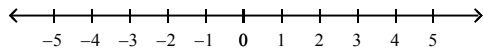
4. $|4b - 4| + |3 - b^2| + 2b^3; b = 2$

Write an algebraic equation to model each problem then use that expression to solve the problem.

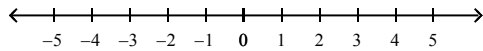
5. A rectangle is 3 times as long as it is wide. The perimeter is 60 cm. Find the dimensions of the rectangle. Round to the nearest tenth if necessary.
6. The sides of a triangle are in the ratio 3 : 4 : 5. What is the length of each side if the perimeter of the triangle is 90 cm?

Solve the inequality. Graph the solution set.

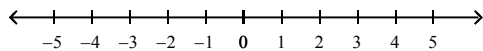
7. $2r - 9 \geq -6$



8. $4(3b - 5) < -31 + 12b$



9. $2(2m - 5) - 6 > -36$



10. **Solve the problem by writing an inequality.**

If the perimeter of a rectangular picture frame must be less than 200 in., and the width is 36 in., what must the height h of the frame be?

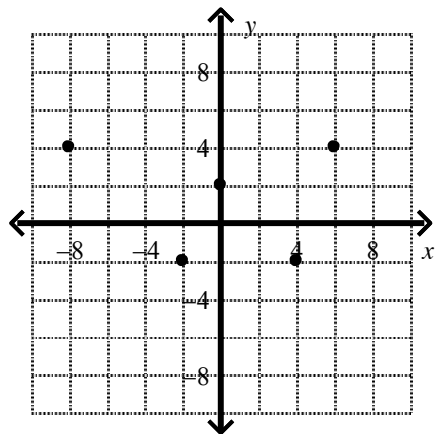
Solve the absolute value equation. Check for extraneous solutions

11. $|3x + 1| = -2$

12. $3|4x + 3| - 3 = 6$

13. $|4 - 3x| = 4x + 6$

14. Find the domain and range of the relation. Is this relation a function? Explain.



Find the slope of the line that passes through the given points, then write the equation of that line in slope-intercept form.

15. $(-12, -4)$ and $(11, -10)$

16. $(8, 7)$ and $(5, 7)$

17. The equation $2x - 2y = -8$ and the table below each represent linear functions. Which has the greater slope, and what is its value?

x	-2	-1	0	1	2
y	2	4	6	8	10

What is the equation of the line in slope-intercept form?

18. $m = \frac{1}{2}$ and the y -intercept is $(0, -5)$

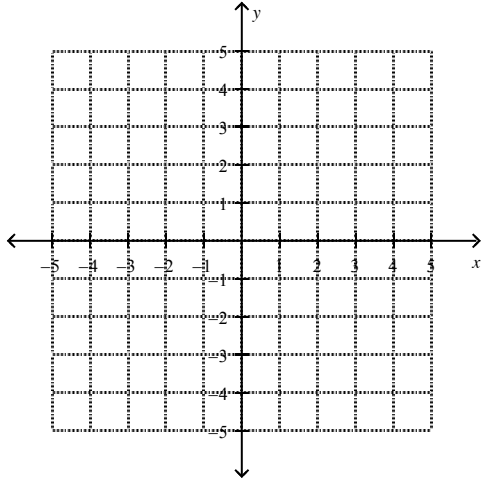
19. the line perpendicular to $y = \frac{1}{3}x + 5$ through $(2, 1)$

20. the line parallel to $y = 8x - 8$ through $(5, 2)$

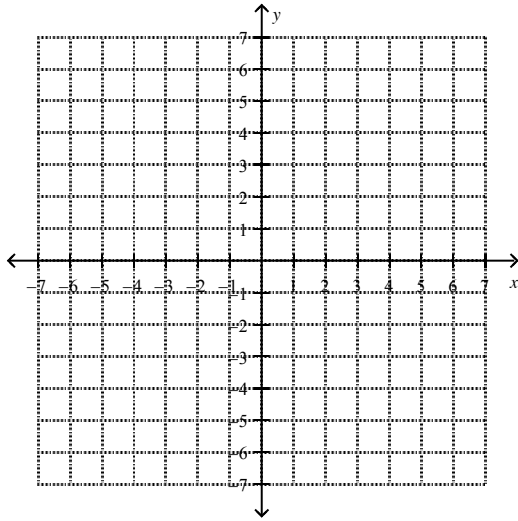
21. **Write the equation in slope-intercept form. What are the slope and y -intercept?**
 $-11x + 9y = -12$

For the next four problems, graph the equations

Q 22. $y = 5x - 4$

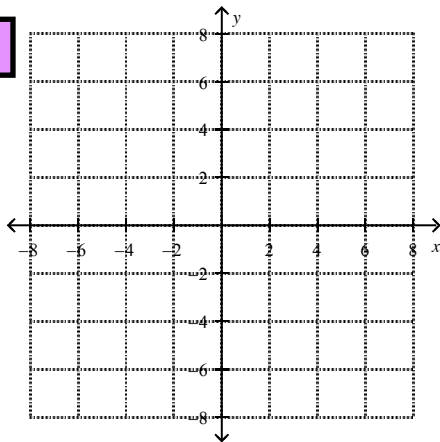


23. $2x - y = 5$

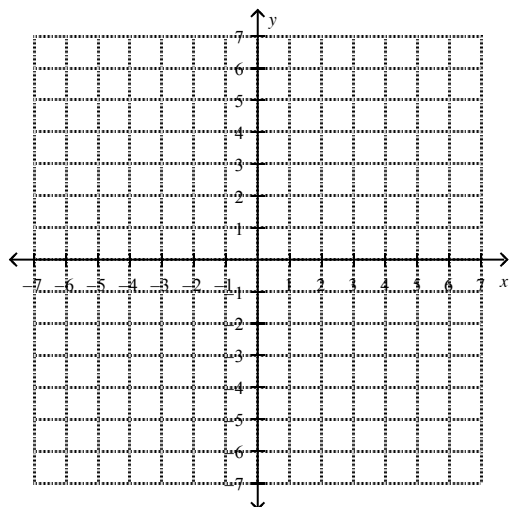


24. $-4x + y = -4$

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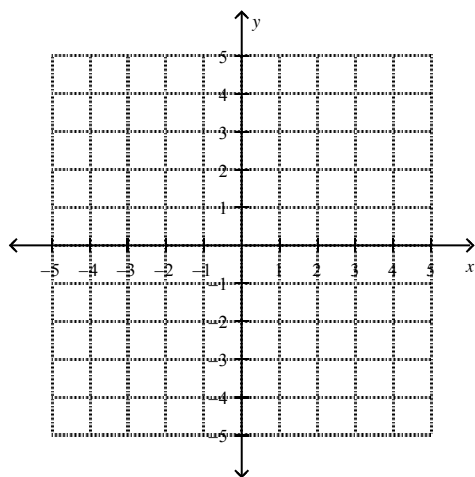


25. $y = -2 + 4x$

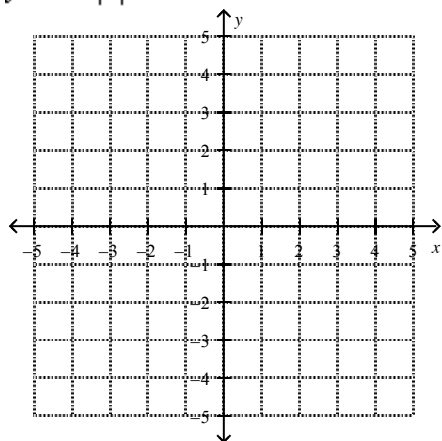


Graph the following absolute value equations. Label the vertex and axis of symmetry.

26. $y = |x + 5| + 2$

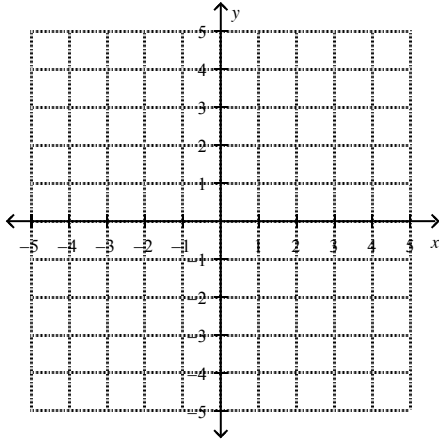


27. $y = -2|x| + 3$



Graph each linear inequality.

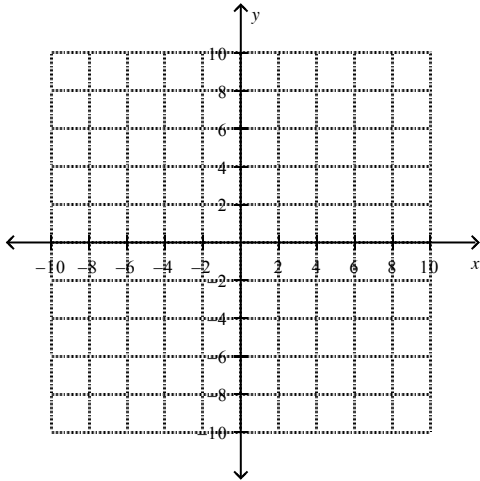
28. $3x - y < -4$



29.

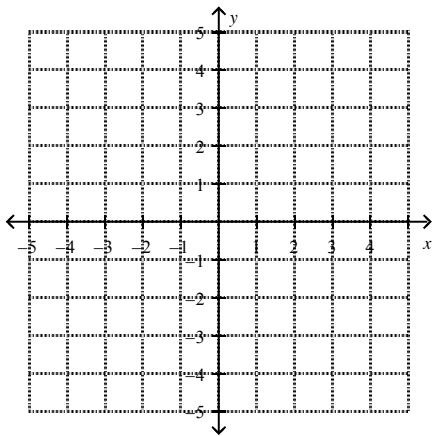
y

Q



30. Solve the system by graphing:

$$\begin{cases} -3x - 2y = -7 \\ 3x - y = 10 \end{cases}$$



31. Solve the system by substitution:
$$\begin{cases} y = -2x + 14 \\ 3x - y = 11 \end{cases}$$

32. Solve the system using elimination:
$$\begin{cases} -4x + 4y = -8 \\ x - 4y = -7 \end{cases}$$

33. The area of a rectangular painting is given by the trinomial $x^2 + 4x - 60$. What are the possible dimensions of the painting? Use factoring to find the dimensions.

34. Simplify the expression by using the base only once?
 $7^{10} \cdot 7^{-4} \cdot 7^7$

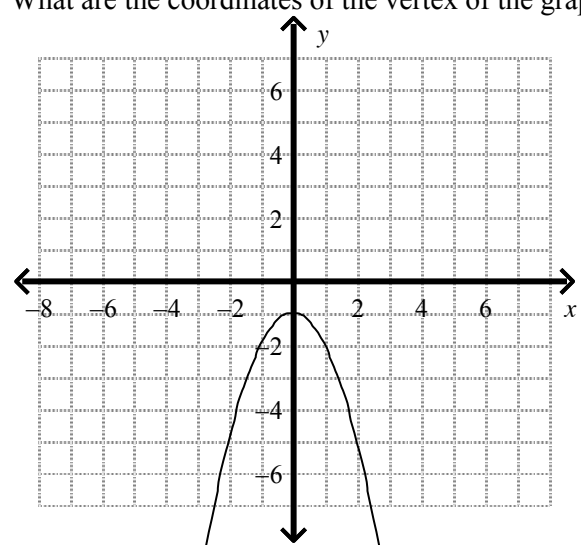
What is the simplified form of each expression?

35. $-4x^3 \cdot 2y^{-2} \cdot 5y^5 \cdot x^{-8}$

36. $\frac{c^9 d^{-7}}{c^{14} d^{-10}}$

37. $\left(\frac{m^{-1} m^5}{m^{-2}}\right)^{-3}$

38. What are the coordinates of the vertex of the graph or table? Is it a maximum or minimum?



39. Create a table of values and use these to graph the function. Identify the vertex and axis of symmetry.
 $f(x) = x^2 + 4x + 1$

40. Simplify the sum.

$$(2u^3 + 6u^2 + 3) + (2u^3 - 7u + 6)$$

41. **Simplify the difference.**

$$(4w^2 - 7w - 6) - (8w^2 + 2w - 3)$$

42. **Simplify the product.**

$$8p(-3p^2 + 6p - 2)$$

For the next three problems, simplify the products using the distributive property.

43. $(2x - 6)^2$

44. $(4p - 8)(4p + 8)$

45. $(3k - 7)(3k - 6)$

Write in simplest factored form.

46. $10x^2 + 31x + 15$

47. $6g^2 + 5g - 6$

48. $d^2 - 20d + 100$

49. $100b^2 - 81$

50. $d^2 - 14d + 45$