

Hello College Algebra Students

I am excited to be working with all of you during the 20230-24 school year. This class is an Arapahoe Community College course. You will get 4 college credits and 1 high school math credit for successful completion of this class. We complete this class in one semester.

In order to cover the required material it is essential that you come to class this fall with a h understanding of Algebra skills taught in previous class. . Completion of this summer assignment will help prepare you for this class. We will review the material during the first week of class, so do your best.

You should complete all problems in this packet; SHOWING ALL WORK. This assignment is due the FIRST DAY you return to school

If there are topics that you are struggling with I suggest you review the examples or use any of the following websites for help.

www.khanacademy.org – videos on an extensive list of math topics (all levels)
www.calculus-help.com/tutorials - help with advanced math topics
<http://www.mathopenref.com> – help with geometry topics
www.freemathhelp.com - offers help at all levels
www.purplemath.com/modules/ - offers help at all levels
www.coolmath.com – offers help on a variety of topics
<http://coolmath.com/graphit/> - an on-line graphing calculator
<http://go.hrw.com/math/midma/gradecontent/manipulatives/GraphCalc/graphCalc.html> - an online graphing calculator
<http://www.webgraphing.com/> - access to numerous on-line graphing calculators

Other recommendations: Google your topic, view you-tube videos, reference a textbook.

See you next year!

Mr. Villwock (avillwock1@dcsdk12.org)

1. Determine whether each ordered pair is a solution of $2x + 3y = 18$

a) $(-5, 7)$

b) $(3, 4)$

2. Graph the linear function: $2x + 3y = 18$ (be familiar with the 3 different methods listed below)

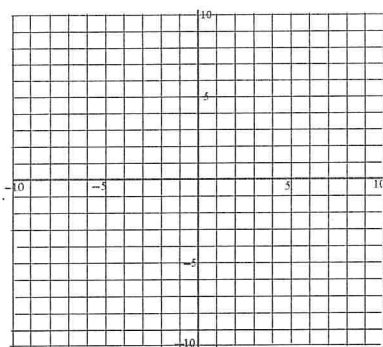
T-chart:

Intercepts:

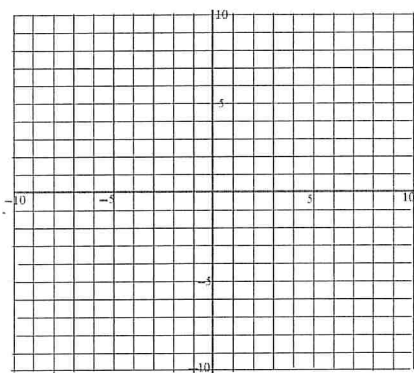
Slope-Intercept Form:

x	y

Graph:



3. Graph the non-linear function: $y = -x^2 + 5$ by making a table.



Distance

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

4. Find the distance between AND the midpoint of the following 2 points: $(-4, -3)$ and $(5, 6)$

Find the Distance: (give the exact and an approximate answer rounded to 3 decimal places):

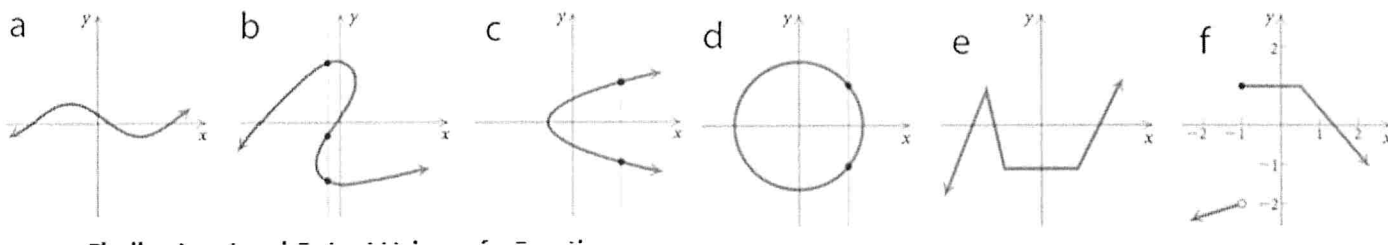
Find the Midpoint:

State the domain and the range of each relation and determine if the relation is a function?

5. $\{(-6, 36), (6, 36), (3, 9), (-3, 9), (0, 0)\}$

6. $\{(-2, 5), (5, 7), (0, 1), (5, -2)\}$

Which of graphs (a) - (f) are graphs of functions



Given that $f(x) = x^2 - 3x - 10$ evaluate

7. $f(2)$

8. $f(-2)$

9. $f(a)$

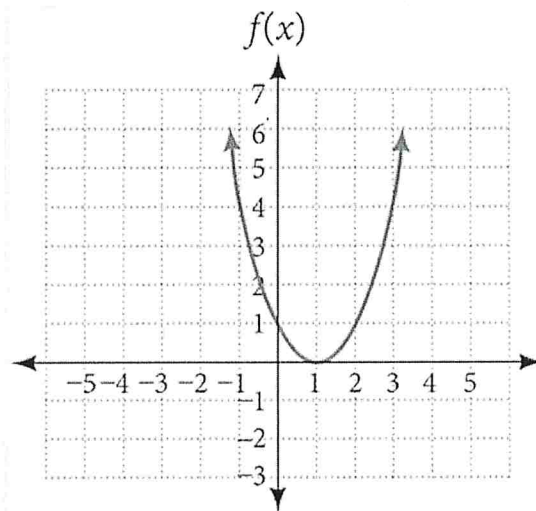
10. $f(-a)$

11. $-f(a)$

12. $f(a+h)$ Try!

13. Solve for $f(x) = 0$

Use the graph to answer the following questions.



14. Evaluate $f(2)$

15. Solve $f(x) = 4$

16. Determine which table represents a linear function between x and y .

x	y
0	2
2	-8
4	-18
6	-28

x	Y
0	0
2	4
4	16
6	36

x	y
0	1
2	9
4	81
6	729

Two equivalent forms of a linear function

Point slope form: The equation of a line passing through any point (x_1, y_1) with slope m is given by

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

Slope intercept form: The equations of a line with y intercept $(0, b)$ and slope m is given by

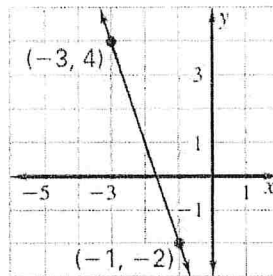
$$y = mx + b$$

These equations are equivalent you can change point slope to slope intercept by solving for y .

17. Find the slope intercept equation of the lines that pass through the given points.

a. $(-12, 4)$ and $(3, -5)$

b.

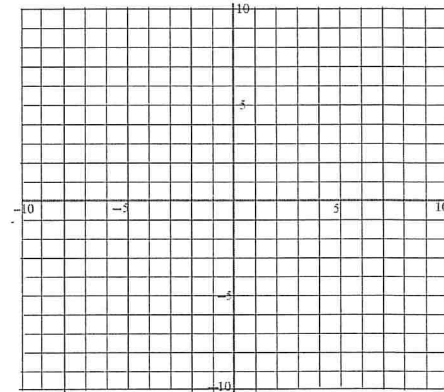
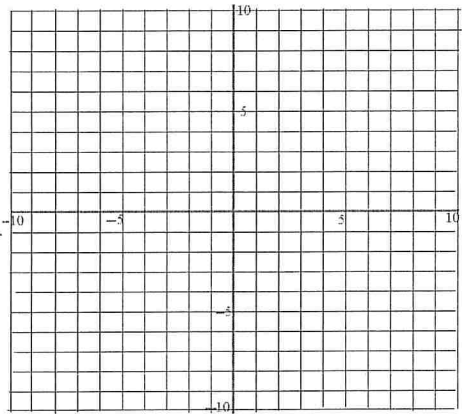


18. Find the x -intercept and y -intercept of the line that passes through the points $(1, 3)$ and $(-2, 5)$.

19. Find the slope and y-intercept, as an ordered pair, and then graph the line

$$2x + y = 7$$

$$4x - 3y = 30$$



20. Find an equation of each line with the given slope that passes through the given point. Write the equation in slope-intercept form, $y = mx + b$.

$$m = 4; (10, 5)$$

$$m = -6; (-8, -10)$$

$$\text{undefined slope, } (3, 2)$$

21. Find an equation of the line passing through each pair of points. Write the equation in slope-intercept form, $y = mx + b$.

$$(-7, -4) \text{ and } (0, 5)$$

$$(3, 7) \text{ and } (-2, -4)$$

$$(3, -4) \text{ and } (-2, -4)$$

22. Determine whether each pair of lines is parallel, perpendicular, or neither.

$$y = \frac{3}{2}x - 4$$

$$3y + 9x = 15$$

$$y = 4x + 3$$

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

$$16 - 4y = 12x$$

$$y = \frac{1}{4}x - 2$$