Upper Darby High School Summer Math Packet
Accelerated Algebra 1B

Name: _____

Algebra 1B Students:

Welcome to Upper Darby High School! We look forward to helping you continue to explore and learn the world of Algebra next school year. As with any mathematics course, your prior knowledge will be called upon to help further your understanding of the content. As Algebra teachers, we have compiled a set of skills that we feel are necessary for you to be as successful as possible next year. Please follow the guidelines below to help you work through, refresh your prior knowledge and walk in to Algebra 1B equipped to learn and succeed!

Directions:

- Complete the following packet over the summer.
- We would suggest completing one review topic and page per week.
- Use the link to the help videos at the top of each page to help refresh your memory. These are set up as QR codes so you can use your cell phone to scan them. These links are also listed by topic at the end of the packet.
- After viewing the video, complete the problems on the page.
- Be sure to show all of your steps to solving the problems.
- If you are stuck on any problems, look back at your notes and work from last year to help.
- If you are still stuck, circle those problems and seek out extra help at the beginning of the school year from your teacher.

This packet must be completed in its entirety and submitted to your teacher during the first week of class. Be prepared for an assessment during the first week of class on these skills to ensure you are equipped with the necessary skills.

Thank you for all of your hard work, dedication and commitment to being the best student you can be. Enjoy your summer.

Sincerely,

Freshman Academy Algebra Teachers

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Solve Equations with One Variable

Solving Multi Step Equations:

Solve for the variable.

1) $-7x + 11 = 19 - x$

2) $18 - 12y = -22 - 7y$

3) $8 - 5y = -3y - 31$

4) $49 + 2x = 6x + 52$

5) $2(x + 7) - 34 = 4x - 11x + 4(x - 1)$

6) $\frac{y}{5} - 9 = 11$

7) $5(2x + 6) = -4(-5 - 2x) + 3x$

8) $-13 = 5(1 + 4m) - 2m$

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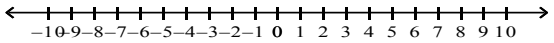
Inequalities with One Variable

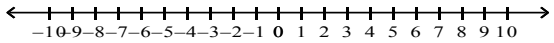
Solving Inequalities with One Variable

Solve each inequality. Graph it on the number line.

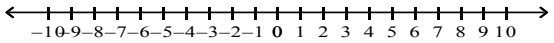
1) $x - 3 < 5$



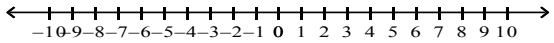
2) $12 \le x - 5$



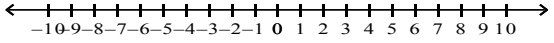
3) $n - 7 \le -2$



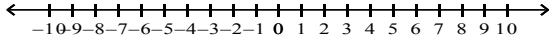
4) $-4 > b - 1$



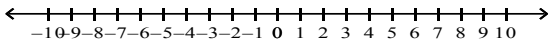
5) $\frac{-2}{3} n \le 2$



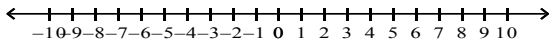
6) $6 \le \frac{-3}{5} w$



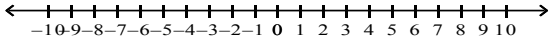
7) $\frac{x}{2} < -1$



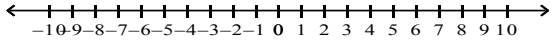
8) $-20 > -5c$



9) $\frac{x}{2} + 3 < 1$



10) $-16 > 5x - 1$



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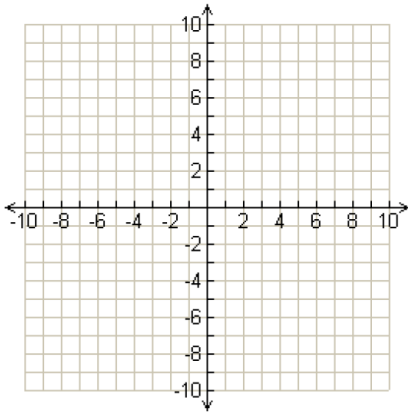
Linear Equations

Graphing Linear Equations

Make an x/y table for the given equations. Plot the points and graph the line.

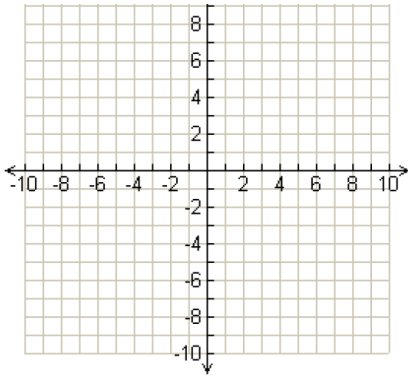
1) $y = 2x - 1$

X	Y



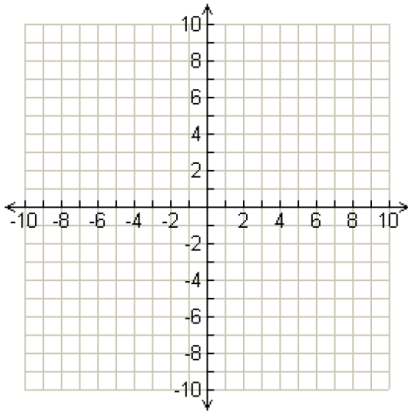
2) $y = -3x + 2$

X	Y



3) $x + 2y = 8$

X	Y



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Finding Slope of Lines

Slope given two points: **Slope Formula:** $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

Find the slope of the line that goes through the indicated points.

1) (-3, 4) and (5, 7)

2) (-11, 8) and (4, 6)

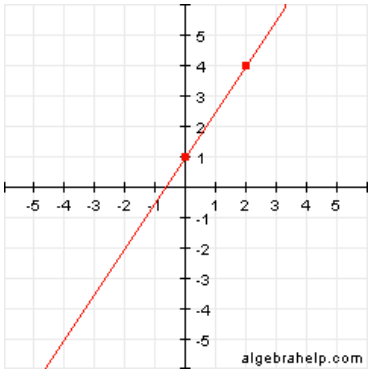
3) (-5, -6) and (-9, -10)

4) (0, -3) and (-5, 0)

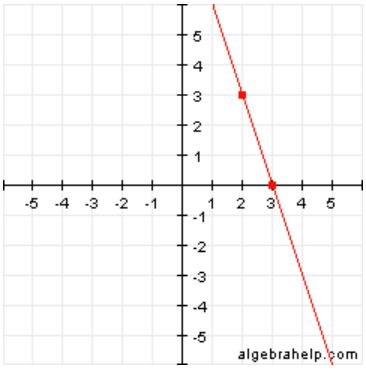
5) (2, 1) and (4, 1)

6) (-3, 15) and (-3, -9)

7) Find the slope of the line from the graph.



8)) Find the slope of the line from the graph.



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Writing Equations of Lines

Writing Equations of Lines:

Formulas needed:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

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

$$y = mx + b$$

Write the equation of a line through the given points.

1) (1, 0), (0, -2)

2) (4, -2), (0, -5)

3) (4, 2), (-2, -4)

4) (3, -2), (6, 4)

5) (2, -2), (3, 2)

6) (0, 5), (-3, 5)

7) (-5, 7), (2, -7)

8) (2, 0) (-2, 6)

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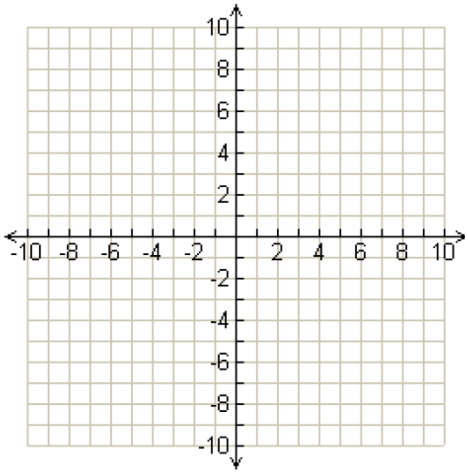
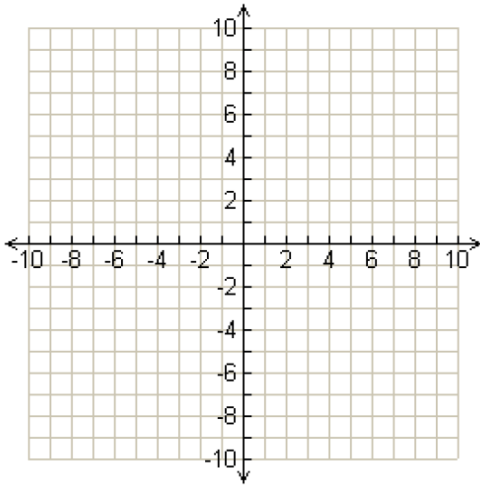
Linear Equations

Graphing linear equations using slope and intercept

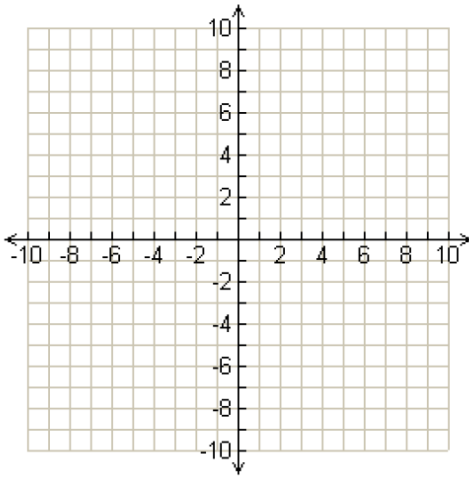
1) Slope = 1/3
y-intercept = 1



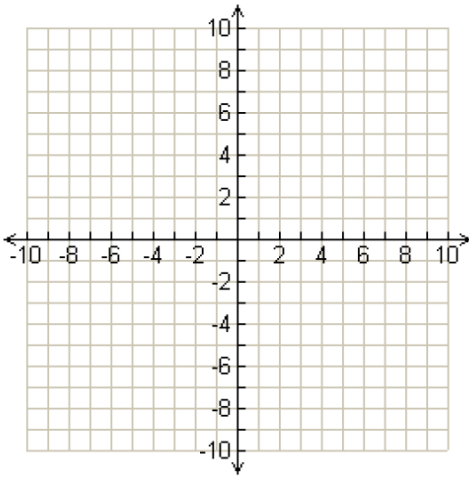
3) y = -3x - 2



2) Goes through the origin as is parallel to the line at y = -x + 7



4) Goes through the pt. (2,3) and has a slope of -1/2.



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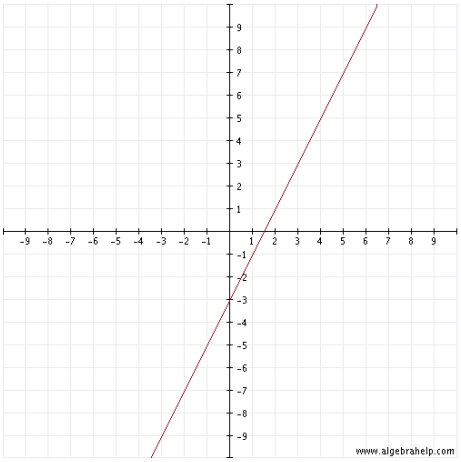
Linear Inequalities

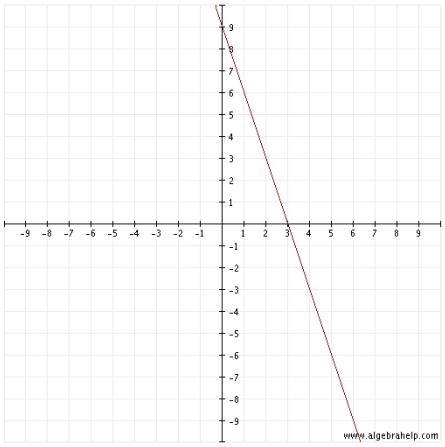
Graphing Linear Inequalities

Shade the correct portion of the graph.

1) $y \leq 2x - 3$

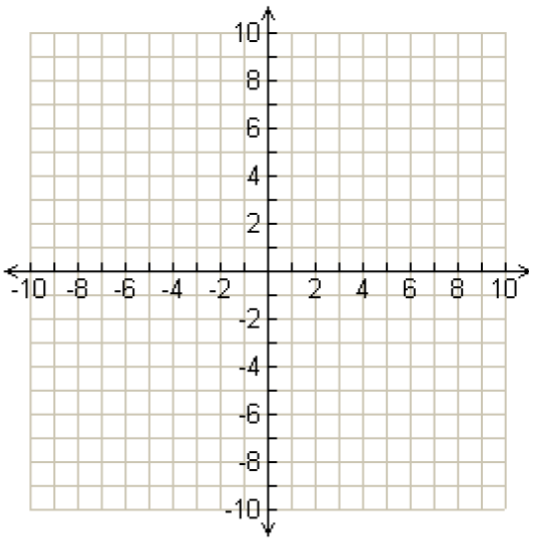


2) $y + 3x \geq 9$

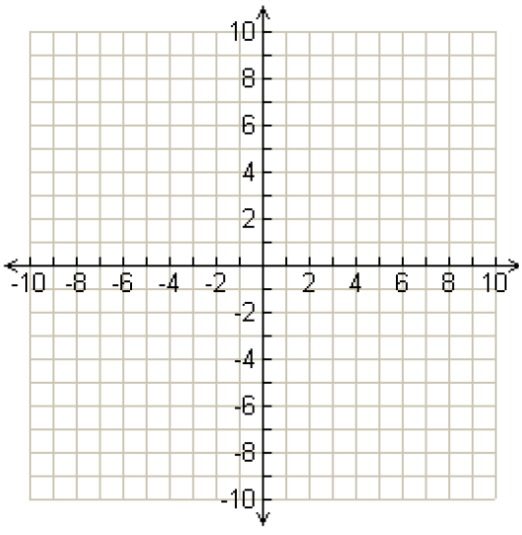


Graph the linear inequality. Shade the correct portion of the graph

1) $3y + 2x \geq 6$



2) $-y + \frac{1}{4}x \geq 2$



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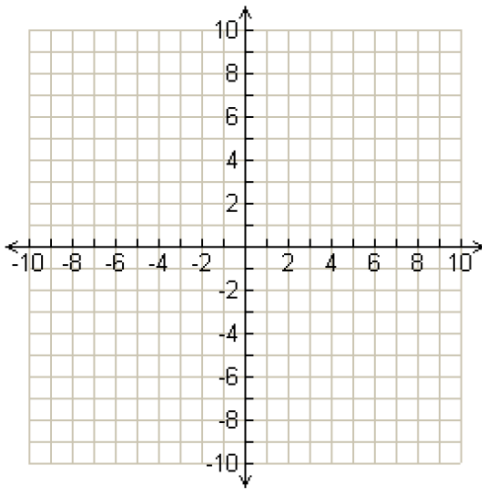
Systems of Equations

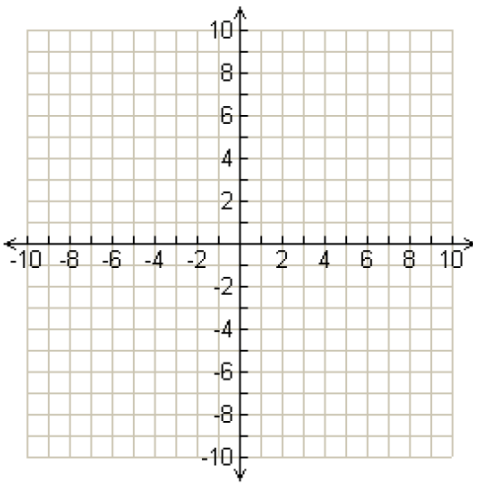
Solving a System of Equations by Graphing

Graph the given lines carefully. Determine the point of intersection.

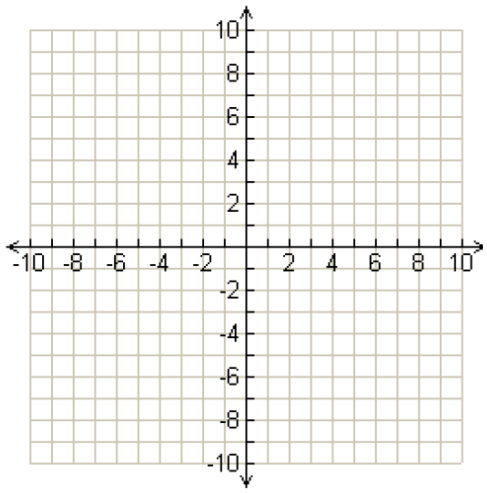
1) $y = -2x$
$y = x + 3$



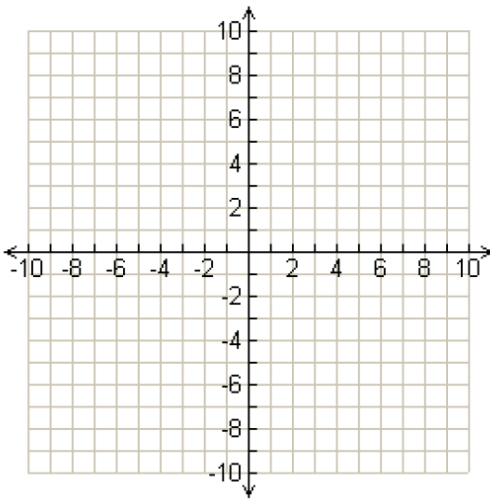
2) $y = \frac{1}{3}x + 2$
$y = -x - 2$



3) $y = -x + 3$
$y = 2x - 6$



4) $x + y = -2$
$7x - 4y = 8$



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Solving Systems by Substitution Method

Substitution Method:

Solve the system by substitution.

1) $4x + 7y = 19$
$y = x + 9$

2) $y = 6x + 11$
$2y - 4x = 14$

3) $x + y = 3$
$3y + x = 5$

4) $2x - 3y = -4$
$x + 3y = 7$

5) $2x - 8y = 6$
$y = -7 - x$

6) $x = 2y - 1$
$3x - 2y = -3$

7) $5x - 2y = 3$
$y = 2x$

8) $2y + x = -15$
$x = 3y$

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Solving Systems by Elimination Method

Elimination Method:

Solve the system by elimination.

1) $\begin{cases} 2x + 3y = 7 \\ 4x - 3y = 5 \end{cases}$

2) $\begin{cases} 5x - 4y = 6 \\ 10x - 3y = -8 \end{cases}$

3) $\begin{cases} 3y + 2x = -4 \\ 7x + 3y = -14 \end{cases}$

4) $\begin{cases} -x + 6y = 39 \\ x - 3y = -18 \end{cases}$

5) 7. $\begin{cases} x - 2y = 4 \\ y = x - 2 \end{cases}$

6) $\begin{cases} x + 3y = 18 \\ -x + 2y = 7 \end{cases}$

7) $\begin{cases} 4x - 3y = 22 \\ 2x + 8y = 30 \end{cases}$

8) $\begin{cases} \frac{1}{3}x + y = 1 \\ -4x + y = 1 \end{cases}$

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Solving for a variable


Manipulating Formulas to isolate a specific variable

Solve the formula for the specific variable

1. $C = 2\pi r$, for r

2. $s = \frac{v}{r}$, for r

3. $I = prt$, for p

4. $A = P + \Pr t$, for t

5. $s = vt + 16t^2$, for v

6. $P = 2(L + W)$, for w

7. $d = \frac{m}{v}$, for m

8. $A = P(1 + rt)$, for r

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Useful Video Links as posted with the QR Codes

Solve Multi Step Equations: https://www.khanacademy.org/math/in-eighth-grade-math/linear-equations-one-variable/solving-equations-variable-both-sides/v/multi-step-equations-1

Solving inequalities with one variable: https://www.khanacademy.org/math/algebra/one-variable-linear-inequalities/alg1-two-step-inequalities/v/solving-inequalities

Graphing linear equation: https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-solutions-to-two-var-linear-equations/v/graphs-of-linear-equations

Slope given two points: https://www.khanacademy.org/math/algebra-basics/core-algebra-graphing-lines-slope/core-algebra-slope/v/slope-of-a-line-2

Writing Equations of lines: https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-slope-intercept-form/v/equation-of-a-line-3

Graphing linear equations using slope and intercept: https://www.khanacademy.org/math/algebra-basics/core-algebra-graphing-lines-slope/core-algebra-graphing-slope-intercept/v/graphing-a-line-in-slope-intercept-form

Graphing linear inequalities: https://www.khanacademy.org/math/algebra-basics/core-algebra-graphing-lines-slope/core-algebra-graphing-linear-inequalities/v/graphing-inequalities

Solve systems by graphing: https://www.khanacademy.org/math/algebra-basics/core-algebra-systems/core-algebra-systems-tutorial/v/solving-linear-systems-by-graphing

Solve Systems by substitution: https://www.khanacademy.org/math/algebra-basics/core-algebra-systems/core-algebra-systems-tutorial/v/solving-linear-systems-by-substitution

Solve systems by elimination: https://www.khanacademy.org/math/algebra-basics/core-algebra-systems/core-algebra-systems-tutorial/v/solving-systems-of-equations-by-elimination

Manipulating Formulas for a specific variable #1: https://www.khanacademy.org/math/algebra2/modeling-with-algebra/manipulating-formulas/v/example-of-solving-for-a-variable

Manipulating Formulas for a specific variable #2:
https://www.khanacademy.org/math/algebra2/modeling-with-algebra/manipulating-formulas/v/rearrange-formulas-to-isolate-specific-variables