

1. Simplify:
 - A. $3(x - 8) - 2(x + 5)$
 - B. $6 - 4 \div 12 + 8 \div 6$
2. Evaluate the expression
 - A. $\frac{-2(y+1)}{16-2y^2}$ when $y = 3$
 - B. $-2b^2 + 4ab$ when $a=2, b=-1$
3. Solve these equations and inequalities. Be sure to show your work.
 - A. $-2(4t - 7) = 3(t - 10)$
 - B. $7 = 7(2b + 5) - 6(b + 8)$
 - C. $-4x - 4 = 3(2 - x)$
 - D. $2a - 6 - (3a + 4) = 10 - 4a$
 - E. $|2x - 4| = 10$
 - F. $|7x - 10| < 4$
4. Solve. Graph the solution to the inequality on a number line.
 - A. $-3 \leq 2x - 1 \leq 5$
 - B. $3x + 1 < -2$ or $3x + 1 > 7$
 - C. $3x - 2 \leq 5x - 3$
 - D. $7 \geq 2 - 5y \geq -3$
5. Literal Equations. Solve for the indicated variable.
 - A. Solve for h: $V = \pi r^2 h$
 - B. Solve for P: $A = P + Prt$
 - C. Solve for y: $5xy + 2x = 3$
6. Application:

From 1980 through 1990, the prize money, P (in \$1000's) for the singles champions at the U.S. Tennis Open can be modeled by $P = 30.2t + 35.8$ where $t = 0$ represents 1980. According to this model, when will the prize money be \$500,000?
7. Construct a table of values for $y = -4x + 12$ if $x \in \{-3, -2, -1, 0, 1, 2, 3\}$
8. A business had a profit of \$58,000 in 1989 and a profit of \$74,000 in 1993. Find the rate of change. Write an equation that models the information given.
 Rate of change _____ Equation _____
9. Find the slope of the line containing the points and write an equation of the line containing the points:
 - A. $(9,1), (-5,2)$
 Slope:
 Equation:
 - B. $(6,5), (-2,5)$
 Slope:
 Equation:
 - C. $(2,5), (4,8)$
 Slope:
 Equation:
 - D. $(6,3), (6,-1)$
 Slope:
 Equation:

10. State whether the lines are parallel, perpendicular or neither. Explain why.

A. $2x - 4y = 8$, $-x + 2y = 4$

B. $2x - 4y = 8$, $2x + y = 4$

11. Find the x and y intercepts of the given lines.

A. $2x - 5y = 20$

B. $-9y - 12x = 27$

12. Write each equation in slope-intercept form.

A. $2x - 10y = 15$

B. $x - y = 2x + 3y + 9$

C. $-2x = 24 - 8y$

13. Write the equation of the line with the given information

A. Y-intercept 4 and slope -3

B. Slope 2 and containing the point $(-4, 5)$

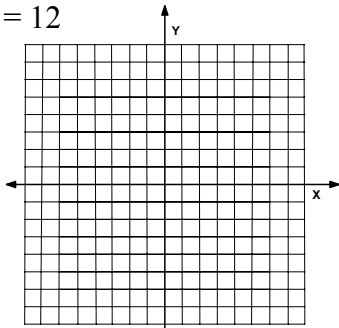
C. Containing $(5, -2)$ and $(7, -3)$ that is parallel to $2x + y = 6$

D. Passes through $(6, 4)$ and is parallel to $y = 2x - 5$

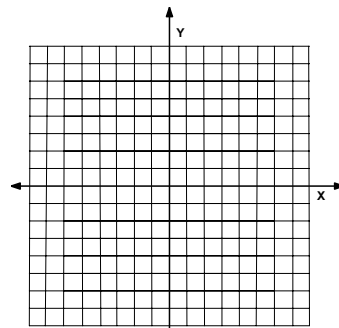
E. Passes through $(6, 4)$ and is perpendicular to $y = 2x - 5$

14. Graph the following equations and inequalities

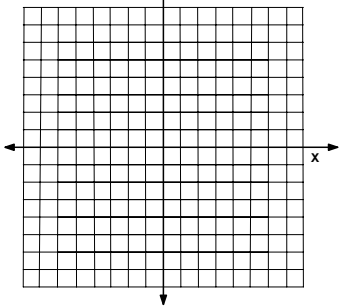
A. $2x - 4y = 12$



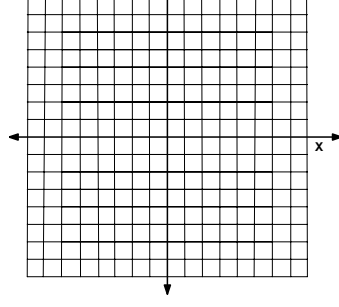
B. $3x - 2y > 4$



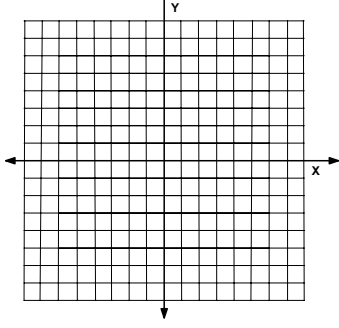
C. $y < 2x + 1$



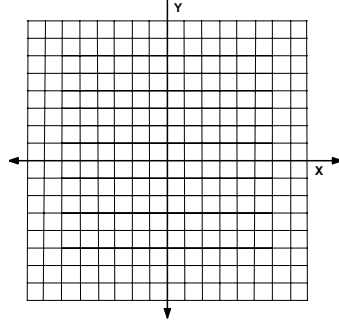
D. $y = -\frac{2}{3}x - 4$



E. $x \geq -2$



F. $y = -3x$



15. Be able to extend your ability to solve simple equations to include those containing fractions or decimals. Solve each of the following equations.
- A. $\frac{1}{2} X - 12 = 4$
 B. $25X + 4 = .5X$
 C. $\frac{3}{4} X + \frac{1}{2} X = 10$
16. Be able to simplify the following
- A. $2x(x - 5)$
 B. $-2(4 - 3a)$
 C. $4(x^2 - x + 2) - 5(x^2 - 2x + 1)$
 D. $5(3t - 4) - (t^2 + 2) - 2t(t - 3)$
 E. $(4x - 1)(3x + 7)$
 F. $x(x - 1)(x + 2)$
 G. $(2x - 1)^2$
 H. $(1 + 2x)(x^2 - 3x + 1)$
17. Factor the polynomials
- A. $2x + 12x^3$
 B. $5ab - 15abc$
 C. $x^2 + 7x + 6$
 D. $x^2 - x - 6$
 E. $2x^2 + 7x - 4$
 F. $9x^2 - 36$
 G. $x^2 + 10x + 25$
 H. $4x^2 - 9y^2$
 I. $4x^2 - 12x + 9$
18. Solve the quadratic equation by using the quadratic formula. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- A. $x^2 - 8x + 12 = 0$
 B. $3x^2 + 5x - 2 = 0$
 C. $6x^2 - 5x - 6 = 0$
 D. $2x^2 - 3x = 8$
19. Solve these systems of equations
- A. $y = 3x + 2$
 $y = -3x - 2$
 B. $x + 2y = 8$
 $y = \frac{1}{2}x - 2$
 C. $3x - 2y = -22$
 $x + 2y = 6$

20. **Graphing Calculator Skills**

Use your graphing calculator to do such things as

- ✧ Graph an equation of a line (make sure you can set the window so that what you graph fits on your screen) Ex. $y = \frac{1}{2}x + 12$
- ✧ Enter a set of ordered pairs using L_1 and L_2 (STAT...1 Edit)..... remember x coordinates in L_1 and y coordinates in L_2 ... turn on a Stat Plot for your lists and set the window to fit your list, graph the points
- ✧ Find a line of best fit for your data points entered above (Hint: it is under STAT....right arrow to CALC)
- ✧ Graph a quadratic equation....(ex. $y = X^2 - 4$) then use 2nd TRACE and explore what you learn from using choices 1-3
- ✧ Enter a linear equation into the Y= screen Enter the equation in Y_1 . Then hit 2nd WINDOW this takes you to TBLSET....enter a value you want your table to start (maybe 0) and Δ Tbl simply means for you to enter the change you want the table to increase...for example, if you want to go by 1's enter 1, for 2's enter 2, etc. Leave Indpnt and Depend highlighted on AUTO. Now hit 2nd GRAPH. You now have a table of values that fall on the equation you entered in Y_1

A. Graph the following on your graphing calculator. If you do not have a graphing calculator, you can also use Excel and graph them.

- | | |
|-----------------|------------------|
| 1. $y = 5 - 2x$ | 4. $y = -2x - 3$ |
| 2. $y = 8 - 2x$ | 5. $y = -4 - 2x$ |
| 3. $y = 2x$ | |

From the graphs, tell which of the equation has the greatest value for y when $x = -5$

- B. Graph the equation $y = 0.3x + 1.5$ on your calculator. Then find the x-intercept to the nearest hundredth.
- C. Solve this equation using a graphing calculator. $5.5x + 0.3(4 - x) = 7.2x - 3$
- D. The data below shows hours spent researching the stock market per week and the percent gain for an investor.

Hours:	6	8	10	12	14	16	18
%Gain	28	34.5	43.5	49	55.5	63.5	70

Use your calculator to find the line of best fit for this data set and predict the gain for 22 hours of research.

E. This table gives data from a plant growth experiment.

Time (in weeks)	Height (cm)
3	4.6
4	5.8
7	9.4

Find the line of best fit for this data and predict the height of the plant when

Time (in weeks)	Height (cm)
10	?
13	?
18	?