Alg2 Honors Summer Assignment 2019

This assignment is designed for you to practice topics learned in Algebra 1 that will be relevant in the Algebra 2 Honors curriculum. This review is especially important as you have most recently studied Geometry, where your Algebra 1 skills may have been employed with less frequency.

A topic list along with links to selected videos is outlined on the following page should you need help with the concepts. The videos can also be found on YouTube under the channel MATHCamp321 (under the Algebra 2 playlist). The answer keys will be posted during the last week of August on the THS website under Mathematics Department Files. It is suggested that you review your answers and identify your questions at the END of the summer so that the material is fresh when school resumes.

You should bring the completed assignment along with any questions to class on the first day of school. Your questions will be reviewed during the initial days of school. An assessment on the assignment will be given at the conclusion of the first week of school.

Algebra Topic	Video MATHCamp321
1. Solving Linear Equations/Literal Equations	HERE HERE
2. Solving Absolute Value Equations	HERE
3. Interval Notation	HERE
4. Solving Compound Inequalities	HERE
5. Solving Absolute Value Inequalities	HERE
6. Slope, intercepts, and writing equations in various forms (plus parallel and perpendicular)	HERE HERE
7. Graphing Linear/Absolute Value Inequalities	
8. Domain and Range (from graph and an expression)	
9. 2 by 2 Systems	
10. Rules of Exponents	HERE HERE
11. Polynomial operations: Add, subtract, distribute, FOIL, clamshell.	HERE HERE
12. Factoring	HERE HERE
13. Radicals - simplify and operations (square roots only)	
14. Quadratic Functions: Find vertex - -b/2a and/or complete the square	HERE
15. Solve quadratic equations by **factoring**	
16. Solve quadratic equations by **completing the square**	
17. Solve quadratic equations using the **quadratic formula**	
18. Solve quadratic equations/inequalities using a **graph**	
19. Calculator Fluency	

Algebra 2 Honors Summer Packet

Solving Linear Equations with Fractional Coefficients

For these problems, you should be able to:

A) **determine** the LCD when given two or more fractions

B) **solve** a linear equation with fractional coefficients

Solve each equation with fractional coefficients. Check your solutions with the video.

1V. $\frac{5}{2}x+\frac{2}{3}=\frac{1}{6}(x-3)$

2V. $\frac{2}{3}-\frac{4}{5}x=\frac{3}{2}x-\frac{3}{5}$

Independent Practice:

3. What is the LCD of the three fractions? $\frac{?}{4},\frac{?}{5},\frac{?}{3}$

4. Solve: $\frac{3}{4}+\frac{2}{5}x=\frac{1}{3}(x-2)$

5. Solve: $\frac{5}{3}-\frac{1}{4}x=\frac{5}{6}x-\frac{3}{4}$

Solving Literal Equations

For these problems, you should be able to:

A) **solve** a literal equation for a specified variable

B) **identify** any restrictions in the original problem and final answer

If you need assistance, watch the corresponding video on MathCamp321.

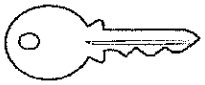
For questions 1-3, solve the literal equation for the indicated variable. Include restrictions.

1. Solve for b_1: $A=\frac{1}{2}h(b_1+b_2)$

2. Solve for r: $V=\frac{4}{3}\pi r^3$

3. Solve for w: $z=\frac{2x-w}{3x+w}$

Solving Absolute Value Equations



For these problems, you should be able to:
A) **solve** an absolute value equations using two cases
B) **identify** extraneous solutions by checking your answer
If you need assistance, watch the corresponding video on MathCamp321.

Solve each absolute value equation showing work as per the video.

1V. $2|x-3|+1=15$

2V. $|x+5|+12=10$

3V. $|2x-4|=x-8$

Independent practice:

4. Solve: $|x-3|=7$

5. Solve: $-|5x|=10$

6. What is an **extraneous solution**?

7. The equation, $|x-2|=2x-1$, yields the solutions $x=-1$ and $x=1$. Show the check for each of these solutions and decide which, if any, is the solution to the equation.

For questions 8 and 9, solve, clearly showing the two cases.

8. $-2|8-x|=-6$

9. $|x+3|=3-x$

10. Solve and identify any extraneous solutions: $-3|x-8|=6x-12$

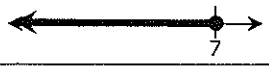
Flip WS 1.5: Interval Notation

For these problems, you should be able to:

A) **express** an inequality using a number line, using an algebraic sentence and most importantly, by using interval notation.

B) **identify** included boundaries and non-included boundaries

1V. Practice – Fill out this worksheet as you watch the corresponding video on MathCamp321.

	Algebraic inequality	*Number line*	*Interval notation*	*Set-builder notation*
25V.	$x < 5$			
26V.	$x \geq -3$			
27V.	$-4 < x \leq 4$			
28V.	$x < -2$ or $x > 3$			
29V.				$\{x \mid 0 \leq x < 10\}$
30V.			$(-6, \infty)$	
31V.			$(-\infty, 4) \cup [5, \infty)$	
32V.				

Independent Practice:

2. **Multiple choice**: Give the interval over which the inequality is true: $10 < x$

A. $(-\infty, -10)$ B. $(-10, \infty)$ C. $(-\infty, 10)$ D. $(10, \infty)$

3. **Application**: Use interval notation to describe the solution set for the range in temperature in a certain city on July 4th: $71° \leq t \leq 94°$

4. Use interval notation to describe the solution set: $x < -4$ or $x > 20$

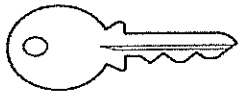
5. Explain why the interval shown is incorrect based on the solution set shown on the number line:  is the same as $(\infty, 3]$.

student sees↑ ↑*student concludes*

6. **Multiple choice**: Which grouping symbol will always be adjacent to the infinity symbol?

A. brace {,} B. bracket [,] C. parenthesis (,)

Solving Compound Inequalities



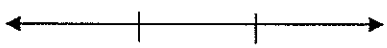
For these problems, you should be able to:
A) **determine** the solution set using interval notation

Fill out this worksheet as you watch the corresponding video on MathCamp321.

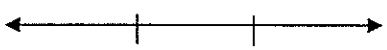
Using interval notation, find the solution set to each compound inequality.

1V. $x < 3$ and $x \geq 0$

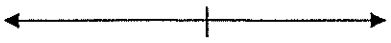
2V. $x \leq -1$ or $x > 1$



3V. $4 \leq x \leq 6$

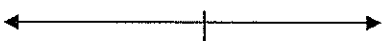


4V. $5 > x$



5V. $x < 0$ or $x > 0$

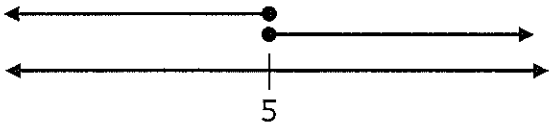
6V. $x < 0$ and $x > 0$



Independent Practice:

7. Classify the following compound inequality as an "and" or "or" problem: $-10 \leq x \leq 10$

8. Does the shading on the number line and the solution suggest an "and" or "or" problem?



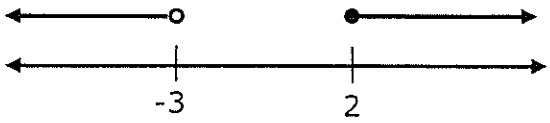
a. solution set: $(-\infty, \infty)$

b. solution set: 5 only

Match the solution set shown on the number line with the corresponding solution set in interval notation:

_____9.

_____10.



A. $[-3, 2)$

B. $(-\infty, -3) \cup [2, \infty)$

C. $(-3, 2]$

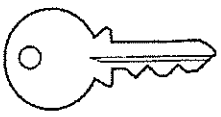
D. $(-\infty, -3] \cup (2, \infty)$

For questions 11-13, find the interval over which the compound inequality is true. Show the word "**and**" or "**or**" in addition to your shaded number line *before* you state the solution interval.

11. $2 - x < 3$ and $x + 7 < 10$

12. $5 \leq x - 1 < 8$

13. $6 - 2x < 20$ or $x > 1$



Flip WS: Solving Absolute Value Inequalities

For these problems, you should be able to:

A) **determine** the solution set to an absolute value inequality

B) **use** greatOR or less thAND to distinguish between "and" and "or"

Fill out this worksheet as you watch the corresponding video on MathCamp321.
Start with this: write down the three key points identified as 1, 2, and 3.

1.

2.

3.

Solve each absolute value inequality as per the video.

1V. $|x+1|<5$ 2V. $2|x+1|-3\geq 9$ 3V. $|x+1|\leq 2x-3$

Independent Practice:

For questions 4-7, match the solution set shown on the number line with the corresponding compound inequality:

4. $|x|>2$ 5. $|x|<2$

6. $|x|\geq 0$ 7. $|x|<0$

A. $(-2,2)$

B. $(-\infty,-2)\cup(2,\infty)$

C. no solution

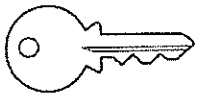
D. all real numbers

E. 0 only

For questions 8-10, find the interval over which the absolute value inequality is true. Show the word "and" or "or" in addition to your shaded number line before you state the solution interval.

8. $|x-1|\geq 2$ 9. $3|x-2|-3<9$ 10. $|x|>2x+1$

Flip WS: Point-slope Form

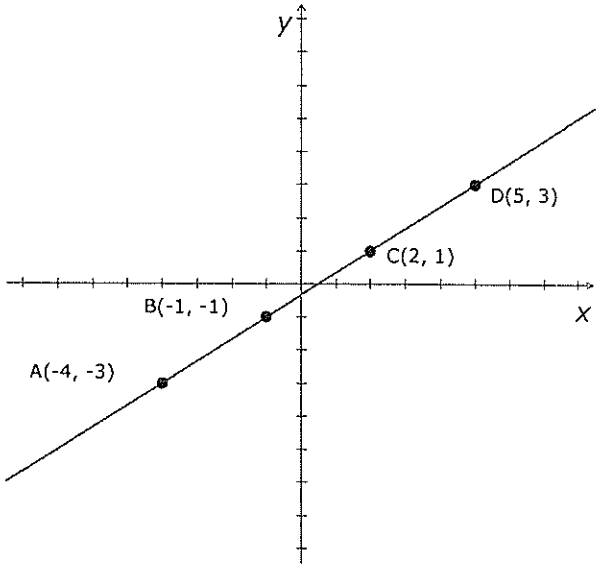


For these problems, you should be able to:

A) **write** a linear equation in point-slope form
B) **understand** that a single line has infinitely many point-slope forms
C) **transform** a linear equation in point-slope form into slope-intercept form

Point-slope form:

1V. Show the calculation to find the slope of $\overline{CD}$.



2V. Write the **point-slope** form using point **A**.

3V. Write the **point-slope** form using point **B**.

4V. Write the **point-slope** form using point **D**.

Independent Practice:

5. Using the traditional formula to calculate slope, cross-multiply and see what you get!

$$m = \frac{y - y_1}{x - x_1}$$

6. **True or false**: the following **point-slope** form is *simplified*: $y - (-5) = \frac{-3}{4}(x - (-1))$

7. Write the **point-slope** form using point **C** in the line shown on this page.

Practice: Slope and Equations of Lines

Slope-Intercept Form: $y = mx + b$

Standard Form: $ax + by = c$, where a, b, and c are integers and $a \geq 0$.

General Form: $ax + by + c = 0$, where a, b, and c are integers and $a \geq 0$.

Point-Slope Form: $y - y_1 = m(x - x_1)$

Equation of a Vertical Line: $x = c$, where c is any real number.

Equation of a Horizontal Line: $y = c$, where c is any real number.

Neatly show all work. Use the indicated form. Box in your final answers.

1. Write the following in **slope-intercept form**: $2x - 5y = 8$

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2. Transform the following into **standard form**: $y = \frac{5}{4}x - \frac{3}{2}$

---

3. Manipulate the following into **general form**: $-3x + 4y = \frac{1}{2}$

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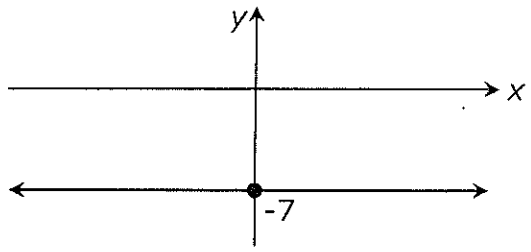
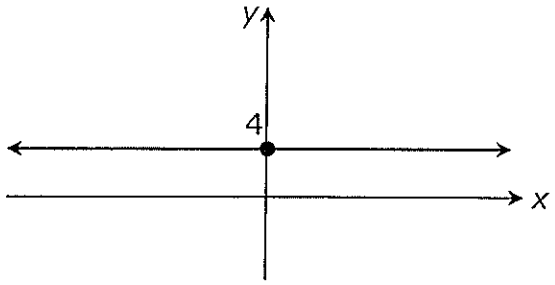
4. Write the line with the following conditions into **point-slope form**: passes through $\left(-7, \frac{1}{2}\right)$ and has a slope of 9.

5. Write the equation of the line shown in **standard form**:



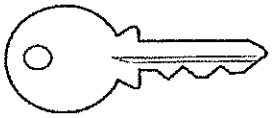
6. In **general form**, write the equation of the line that is <u>parallel</u> to the line shown and passes through the point (-5, 8).



7. In **general form**, write the equation of the line that passes through the points (-5, -1) and (4, 5).

8. Write the equation of the line whose *y*-intercept is -6 and whose *x*-intercept is 2 in **standard form**.

9. If line $a \perp b$ and line *a* has the equation $5x - 6y = 10$, determine the equation of line *b*, in **point-slope form**, if *b* passes though (1, -2).



Practice: Domain and Range from a Graph

For these problems, you should be able to: determine the domain and range given a sketch.

1. When determining the domain by analyzing a sketch, you must scan the sketch from

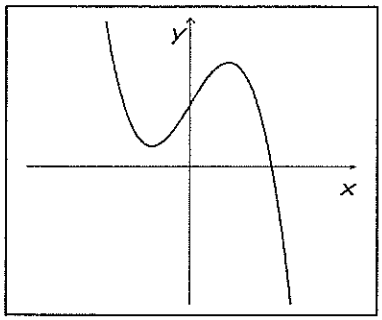
   _____ to _____ to see where the _____-values exist.

2. When determining the range by analyzing a sketch, you must scan the sketch from

   _____ to _____ to see where the _____-values exist.

Using interval notation, give the **domain** and **range** by analyzing the sketch.

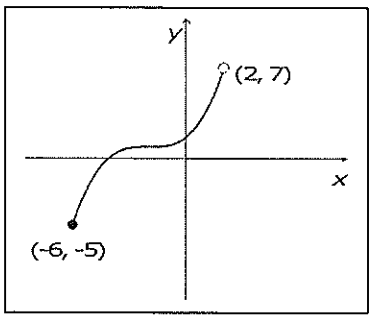
3.



D:_____

R:_____

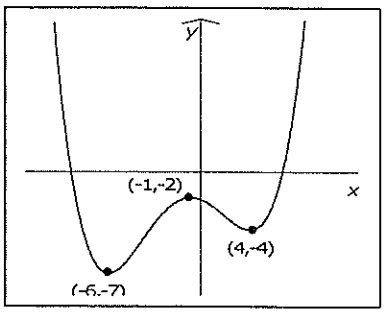
4.



D:_____

R:_____

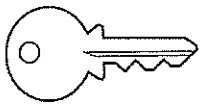
5.



D:_____

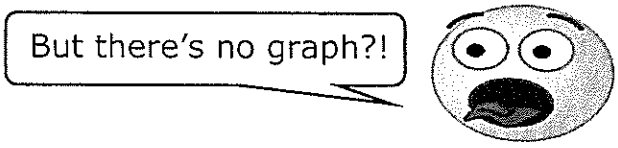
R:_____

Practice: Finding Domain of an Expression



Key concept: For what value(s) of x will the given expression yield a *real* number output?

Two Rules:
1. denominator $\neq 0$
2. if $\sqrt[even]{R}$, then $R \geq 0$



Find the domain of each expression. Express solution using interval notation.

1. $5x^2 + 2x - 1$

2. $\frac{4}{x}$

3. $\frac{3x}{x+5}$

4. $\sqrt{x-10}$

5. $2x + 4$

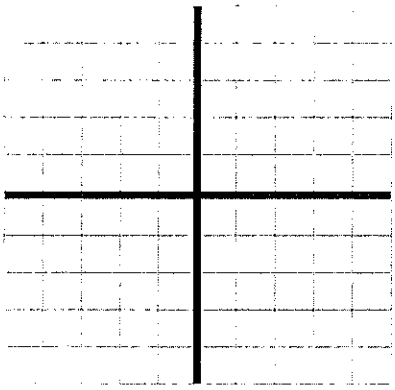
6. $\frac{5}{x^2 - 25}$

Practice: Graphing Inequalities

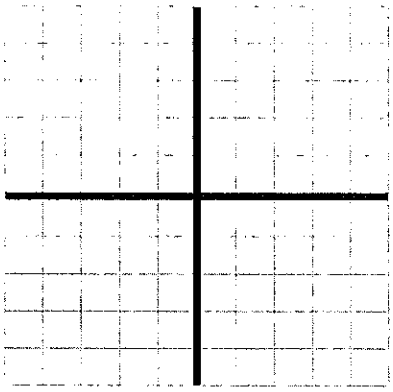
Solid or dotted? Where to shade? FLIP THE SWITCH?

A) Write the related equation and sketch.
B) Select test points in each resulting region and shade accordingly.

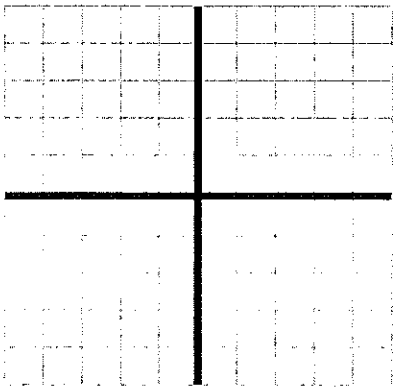
1. Sketch: $x - 2y < 4$



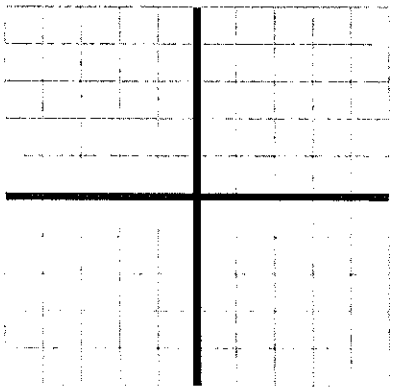
2. Sketch: $y \leq 4$



3. Sketch: $2x - 3y < 6$



4. Sketch: $y \geq |x + 1| - 1$



Practice: 2x2 Systems

I. Solve each system by **elimination**. Express your solution as an ordered pair [i.e. (-3, 6)]

1. $4x - 5y = 17$
   $3x + 4y = 5$

2. $\frac{5}{2}x - \frac{3}{4}y = 46$
   $-3y - \frac{7}{8}x = 10$

II. Solve each system by **substitution**. Express your solution as an ordered pair.

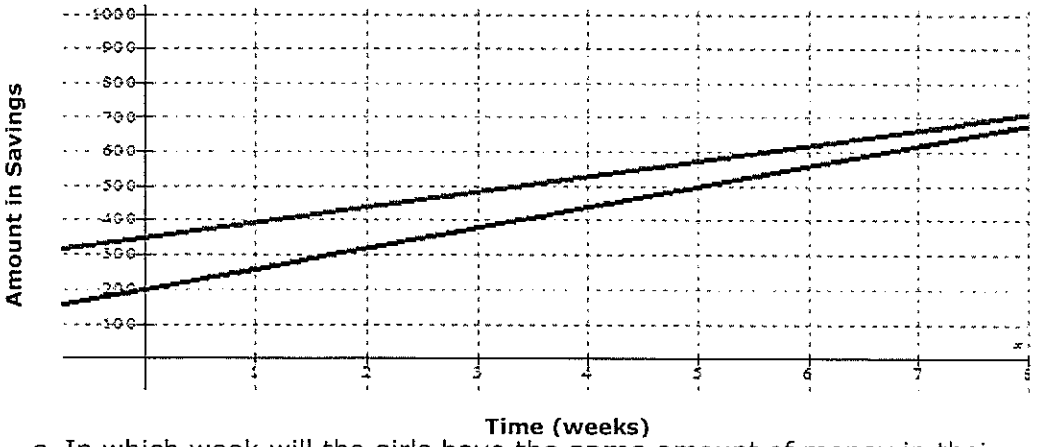
3. $\begin{aligned} 2x + y &= 11 \\ 6x - 2y &= -2 \end{aligned}$

4. $\begin{aligned} 6x + 3y &= 12 \\ 2x &= 8 - y \end{aligned}$

III. 2 x 2 Applications: For the following problems, set up a system of equations and solve using any method.

5. 35 lights are needed to light up the stage in The Lion King on Broadway. Only 100 watt and 150 watt fixtures are available. The total allowable wattage is 4000 watts. How many of each type of fixture will be used?

6. On January 1st, Heather has $200 in her bank account, and earns $60 per week babysitting. On January 1st of the same year, Sally has $350 in her bank account, and earns $45 per week working at Dairy Queen. Using *slope-intercept form,* write a linear function describing the amount of money in each girl's bank account as a function of time.



a. Linear model for **Heather:**

b. Linear model for **Sally:**

c. In which week will the girls have the **same** amount of money in their accounts?

d. What is the amount of money in each girl's account at the week when the amounts are the same?

e. Which girl has more money after 15 weeks? How much more money does the girl with the larger account have over the girl with the lesser amount at this time?

Flip WS: Monomials – Rules of Exponents

A **monomial** is an expression that is a number, a variable, or the product of a number and a variable. Monomials can **not** contain variables in denominators, variables with negative exponents, or variables under radicals. A **constant** is a monomial that contains no variables. A **coefficient** in the number that proceeds a variable. The **degree** of a monomial is the sum of its exponents.

RULES OF EXPONENTS

$x^0 = 1$	Anything raised to the power of zero equals 1. ($x \neq 0$)
$x^a \cdot x^b = x^{a+b}$	When multiplying powers of the <u>same</u> base, retain the base and **add** the exponents.
$\frac{x^a}{x^b} = x^{a-b}$	When dividing powers of the <u>same</u> base, retain the base **subtract** the exponents.
$\left(x^a\right)^b = x^{a \cdot b}$	When raising a power to a new power, **multiply** the exponents.
$(xy)^a = x^a \cdot y^a$	When several factors are raised to a power, each factor will feel the effect of the exponent.
$\left(\frac{x}{y}\right)^a = \frac{x^a}{y^a}$	When a fraction is raised to a power, both the numerator and denominator will feel the effect of the exponent.
$x^{-a} = \frac{1}{x^a}$; $x^a = \frac{1}{x^{-a}}$	When a term is raised to a negative exponent, the term is sent to the denominator, and the exponent changes sign (from negative to positive) and vice-versa.
$\left(\frac{x}{y}\right)^{-a} = \left(\frac{y}{x}\right)^a$	When a fraction is raised to a negative exponent, the fraction flips and the exponent changes sign.

For #s 1-10, simplify on your own. Check your answers by watching the video link on MATHCamp321.

1V. **[video 1]** $\left(-2a^3b\right)\left(-5ab^4\right)$

2V. **[video 1]** $\frac{s^2}{s^{10}}$

3V. **[video 1]** $\frac{10^{(x-3)(x+3)}}{10^{x^2-6}}$

4V. **[video 1]** $\left(b^2\right)^3$

5V. **[video 2]** $\left(-3c^2d^5\right)^3$

6V. **[video 2]** $\left(\frac{x}{3}\right)^{-4}$

7V. [video 2] $\left(\frac{-3a^{5y}}{a^{6y}b^4}\right)^5$

8V. [video 2] $\left(\frac{-4a^{-3}b^6}{7c^{-3}a^4}\right)^{-2}$

9V. [video 2] $\frac{x^0+20y^0-36}{-2\left(x^0y^0\right)}$

10V. $\left(5a^4\right)\left(-4a^6\right)\left(-a^3\right)^2-\left(-2a\right)^4\left(-a^2\right)^6$

11. Express in scientific notation:
    a. 4,560,000

    b. 0.000092

12. Evaluate using scientific notation:
    a. $\left(5\times10^3\right)\left(7\times10^8\right)$

    b. $\left(1.8\times10^{-4}\right)\left(4\times10^7\right)$

Practice: Polynomials – Operations

A **polynomial** is a monomial or a sum of monomials.
A **binomial** is a polynomial with 2 terms.
A **trinomial** is a polynomial with 3 terms.
The **terms** are the monomials that make up a polynomial.
The **degree** of a polynomial is the degree of monomial of highest degree.

Video 1: 12:41 (#s 1-15 ODD)

Video 2: 7:14 (#s 17-23 ODD)

Simplify on your own. Check your answers by watching the video link on MATHCamp321.

1V. $\left(3x^2+4\right)-\left(5x-2\right)$

3V. $-\left(y^2+2y-3\right)+\left(5y^2+3y+4\right)$

5V. $2x\left(x^2-x+3\right)$

7V. $\left(2-x-3x^2\right)\left(5x\right)$

9V. $(2x+3)(4x+1)$

11V. $(3x-y)(3x+y)$

13V. $(3-5x)^2$

17V. $(2u-v)^3$

Flip WS: FACTORING POLYNOMIALS

Video 1 [12:14]

Video 2 [14:35]

① GCF – ★*greatest common factor*
② DOTS – *difference of two squares*
③ SOC/DOC – *sum of cubes / difference of cubes*
④ FAST – *factoring a simple trinomial - trinomial factoring w/ leading coefficient = 1*
⑤ Nobes' – *trinomial factoring w/ leading coefficient ≠1*
⑥ PST – *perfect square trinomial*
⑦ *grouping*

Factor completely. Check your answers by watching the video link on MATHCamp321.

1. $25a^6b^5c^7 - 35a^4b^5c^3 + 15a^5b^6c^4$

2V. $a^2(x-2y) - b(x-2y) - (x-2y)$

3V. $4a^2 - 81b^2$

4. $16x^4 - 25y^2$

5V. $9 - (3x+2)^2$

9V. $x^2 - 9x - 36$

10. $y^2 + 3y - 28$

11V. $z^2 + 25z + 100$

12. $a^2 - 5ab + 6b^2$

13V. $2x^2 + x - 6$

14. $10x^2 + 21x - 10$

15V. $12y^2 - 13y + 3$

16. $12x^2 + 23xy + 10y^2$

17V. $x^2 - 8x + 16$

18. $y^2 + 10y + 25$

19V. $a^2 - 18ab + 81b^2$

20. $36x^2 + 60x + 25$

21V. $xy^2 + x - 2y^2 - 2$

22. $a^3 + 3a^2b - 2ab - 6b^2$

Practice: Rational Square Roots and Radicals

For these problems, you should be able to: simplify rational square roots.

Find each square root.

1. $\sqrt{13^2}$

2. $\left(\sqrt{5}\right)^2$

3. $\sqrt{17^2 - 8^2}$

4. $\sqrt{5^2 + 12^2}$

5. $-\sqrt{\frac{1}{100}}$

6. $\pm\sqrt{\frac{49}{9}}$

7. $\sqrt{\frac{32}{50}}$

8. $-\sqrt{\frac{125}{5}}$

Practice: Irrational Square Roots

For these problems, you should be able to: simplify irrational square roots.

Find each square root. Use simplest radical form for non-perfect squares.

9. $\sqrt{75}$

10. $\sqrt{32}$

11. $\sqrt{48}$

12. $\sqrt{72}$

13. $6\sqrt{45}$

14. $5\sqrt{28}$

Practice: Multiplying and Dividing Radicals

Rule: When multiplying radicals, multiply the numbers on the **OUTSIDE** together, then multiply the numbers on the **INSIDE** of the radical together and simplify if possible.

Multiply.

15. $3\sqrt{2} \cdot 5\sqrt{2}$

16. $-\sqrt{3} \cdot 2\sqrt{3}$

17. $\sqrt{2} \cdot \sqrt{50}$

18. $2\sqrt{5} \cdot 6\sqrt{8}$

19. $\left(2\sqrt{3}\right)^2$

The process by which we eliminate the radical in the denominator is called **rationalizing.**
Simplify.

20. $\frac{4}{\sqrt{6}}$

21. $\frac{1}{\sqrt{3}}$

22. $\frac{2}{\sqrt{10}}$

23. $\frac{5}{\sqrt{5}}$

24. $\sqrt{\frac{5}{12}}$

25. $\sqrt{\frac{3}{8}}$

Practice: Combining Radicals

Combine.

26. $20\sqrt{2} - 5\sqrt{2} - 3\sqrt{2}$

27. $\sqrt{16} + 2\sqrt{25}$

28. $\sqrt{28} + \sqrt{63}$

29. $\sqrt{45} + \sqrt{80}$

Practice: Solving Basic Quadratic Equations

Rule: For any real numbers a and b:
if $a^2 = b^2$, then $a = \pm b$

Samples that require you to **solve** (be sure to isolate the squared term first):

30. $x^2 = 16$

31. $3a^2 = 75$

32. $c^2 = 12$

33. $d^2 - 121 = 0$

Flip WS: Graphing Quadratic Functions

Defn.: A **quadratic function** has the form $f(x) = ax^2 + bx + c$.

ax^2 is called the **quadratic term**, bx is called the **linear term** and c is the **constant**.

•The graph of a quadratic function is called a **parabola**. Some of the parabolas we will study will open upwards while others will open downwards. Parabolas have an axis of symmetry which runs through the vertex and splits the parabola in half.

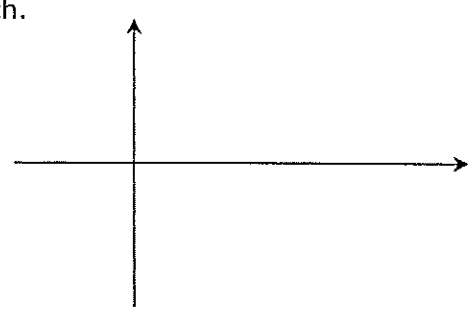
•The x-coordinate of the vertex can be found using the formula: $x = \frac{-b}{2a}$.

Try This Out!:

1. Determine a, b, and c for $f(x) = x^2 - 4x + 2$.
   Then determine the vertex and create a table of 5 values.
   Find the y-intercept and identify the axis of symmetry. Sketch.

$a =$ $b =$ $c =$	x-coordinate of vertex ⇒

x	y

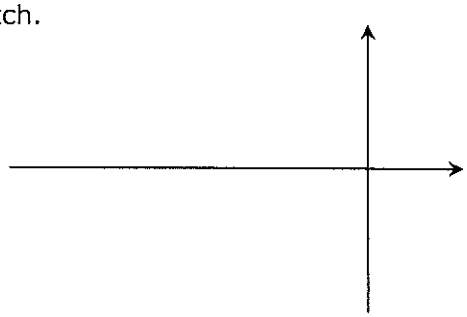


*Complete this example using the MathCamp321 video.

1V. Determine a, b, and c for $f(x) = x^2 + 3x - 1$.
   Then determine the vertex and create a table of 5 values.
   Find the y-intercept and identify the axis of symmetry. Sketch.

$a =$ $b =$ $c =$	x-coordinate of vertex ⇒

x	y



•For $f(x) = ax^2 + bx + c$,

if $a > 0$, then the parabola will open **upward** and the vertex will be a **minimum**.
if $a < 0$, then the parabola will open **downward** and the vertex will be a **maximum**.

2. Consider $f(x) = -x^2 + 2x + 3$. Determine whether the function has a minimum or maximum value. Find the value of the minimum or maximum.

Practice: Solving Quadratic Equations by Factoring

Zero Product Property: for any real numbers a and b, if $ab = 0$, then either $a = 0$, $b = 0$, or both a and b equal 0.

Use **factoring** to solve to solve each quadratic equation.

1. $x(x-6)=0$
2. $x^2+10x=0$
3. $x^2=x$
4. $x^2=9$
5. $x^2-25=0$
6. $4x^2-9=0$
7. $x^2-x-6=0$
8. $x^2-8x+15=0$
9. $x^2+14x=32$
10. $3x^2-5x-2=0$
11. $6x^2+7x+2=0$
12. $2x^2-x=3$

Practice: The Quadratic Formula

If $ax^2+bx+c=0$, then $x=\dfrac{-b\pm\sqrt{b^2-4ac}}{2a}$

Use the **quadratic formula** to solve to solve each quadratic equation.

1. $x^2+2x-8=0$
2. $2x^2-9x+10=0$
3. $x^2+2x=2$

Practice: Solving Quadratic Equations by Completing the Square

Procedure for completing the square:

1. Manipulate the equation so that the leading coefficient is positive one.
2. Isolate the constant.
3. Take ½ of the coefficient of the linear term.
4. Square the result of step 3 and add to both sides of equation.
5. Factor the left side as a PST and square root both sides.

Use **completing the square** to solve each quadratic equation.

1. $x^2 - 6x - 1 = 0$

2. $x^2 + 2x = 7$

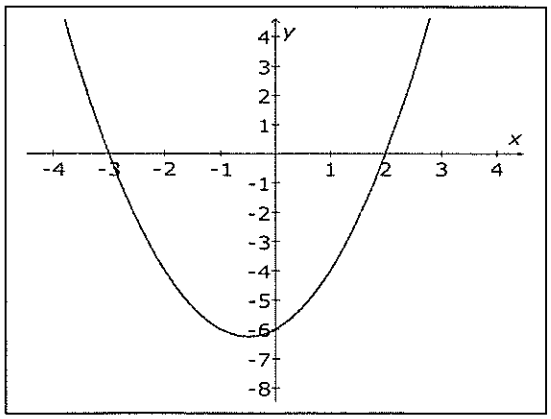
3. $x^2 + x - 1 = 0$

4. $2x^2 - 12x - 6 = 0$

Practice: Quadratic Graph Analysis

Use the graphs shown to answer each question. Use interval notation where appropriate.

5. The graph shown below is $f(x)$.



For which x-values does $f(x)=0$?

Find the y-intercept:

Give the interval for which $f(x)\geq 0$:

Give the interval for which $f(x)<0$:

Calculator Review

The calculator required for any level of algebra 2 is the Texas Instrument, TI-84 (either plus, silver edition, or CE is fine).

Practice Graphing Functions

Activity I:

Go to Y = screen

Let $Y_1 = 2x + 7$

Let $Y_2 = x^3 - 5x^2 + 4x - 8$ (either ^3 or MATH, option 3: ^{3})

Find a viewing window that shows where the two graphs intersect.
(press WINDOW and adjust parameters as needed)

1. Find the point of intersection, rounding to the nearest hundredth.
   (2^{nd}, TRACE, option 5:intersect)

2. Find the x-intercept of $Y_1 = 2x + 7$ (2^{nd}, TRACE, option 2:zero)

3. Find the x-intercept of $Y_2 = x^3 - 5x^2 + 4x - 8$ (2^{nd}, TRACE, option 2:zero)

Go to Y = screen

Let $Y_3 = |x - 1|$ (MATH, NUM, option 1:abs)

4. Find the points (*ordered pair*) where the absolute value graph intersects Y_1 and Y_2.

Activity II:

Go to Y = screen

Let $Y_1 = 0.5x - 12$

Let $Y_2 = 0.1x + 20$

Find a viewing window that shows where the two graphs intersect.
(press WINDOW and adjust parameters as needed)

5. Find the point of intersection, rounding to the nearest hundredth.
   (2^{nd}, TRACE, option 5:intersect)

Practice with the Fraction Template

Activity III:

Go to calculating screen (2^{nd}, MODE)

Press ALPHA , Y = , option 1:n/d

6. Type in and evaluate: $\frac{-3 + \sqrt{10}}{4}$ rounding to the nearest hundredth.