Algebra II Simple Studies Review

Terms

- **Adjacent Angles**: two angles with two common sides and vertex, but no common interior points.
- **Absolute Value**: The distance a number is from 0.
- **Coefficient**: the number that is multiplied with the variable in an algebraic expression.
    - Remember if no number is specified, then the coefficient is 1.
- **Congruent:** Equal or the same measure of an angle.
- **Discriminant**: The number under the radial.
    - Remember, if the discriminant is 0 then the quadratic has infinite solutions. If the discriminant is positive there are two real number solutions, and if the discriminant is negative, then there are no real solutions (only imaginary).
- **Vertical Angles**: Two angles whose sides form two pairs of opposite rays.
- **Acute Angle**: An angle less than 90 degrees.
- **Obtuse Angle**: An angle greater than 90 degrees.
- **Right Angle**: An angle equal to 90 degrees.
- **Straight Angle**: An angle equal to 180 degrees.
- **Midpoint**: The point that divides a segment into two congruent segments.
- **Range**: All of the output of y values in a function.
- **End behavior**: What is happening at the tails of a function (end of a function).
- **Parabola**: The graph of a quadratic function.
- **Ray**: Part of a line with one endpoint.
- **Supplementary angles**: Two angles that add up to 180 degrees.
- **Function**: A relation between inputs and outputs, where each input goes directly with an output forming a function.
- **Domain**: All of the input or x values in a function
- **Intercept**: The point at which a line, curve, or surface intersects an axis.

- **Factor**: A number or algebraic expression that divides into another expression evenly.
- **Reflection**: A figure's mirror image in the axis or plane of reflection.
- **Translation**: Any transformation done to the function. It can be shape, size, direction, or

position.

- **Compression**: The widening of a parabola when the A value is greater than 0, but less than 1.
- **Stretch**: A thinning of the parabola when the A value becomes greater than 1.
- **Axis of symmetry**: the line that divides the parabola into two.
- **Vertex**: The point where the axis of symmetry and the graph of a quadratic meet. It is the maximum or minimum of a parabola.
- **Maximum of a parabola**: The vertex of a parabola that opens downward.
    - Calculated by finding the axis of symmetry and plugging it back into the equation.
- **Minimum of a parabola**: The vertex of a parabola that opens upward.
    - Calculated by finding the axis of symmetry and plugging it back into the equation.
- **Parent function**: The simplest form of a quadratic function.
- **Rational Number**: Any number that can be written as a fraction is considered rational.
- **Irrational Number**: A number that can't be expressed as a fraction.

From https://simplestudies.edublogs.org

Formulas to Remember

- Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

- Distance Formula

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

- Midpoint Formula

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

- Area of a Circle

$$\text{Area} = \pi r^2$$

- Direct/Joint variation

$$y = kx$$

- Inverse Variation

$$k = \frac{y}{x}$$

- Discriminant Formula

$$D = b^2 - 4ac$$

- Pythagorean Theorem

From https://simplestudies.edublogs.org

$$a^2 + b^2 = c^2$$

- Sine

$$\text{sine: } \sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

- Cosine

$$\text{cosine: } \cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

- Tangent

$$\text{tangent: } \tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{\text{opposite}}{\text{adjacent}}$$

- Area of a triangle

$$\text{Area} = \frac{1}{2} \times b \times h = \frac{bh}{2}$$

- Slope Intercept Form

$$y = mx + b$$

- Area of a circle

$$A = \pi r^2$$

- Circumference of a circle

$$2\pi r$$

Theorems to Remember

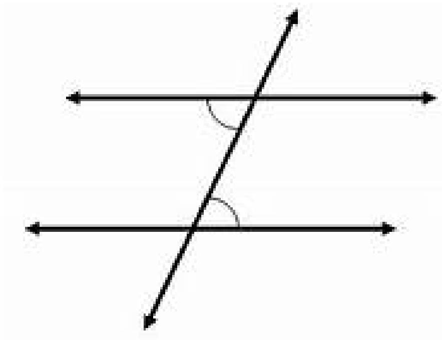
- **Fundamental Theorem of Algebra**: Every polynomial with complex coefficients has at least one complex root.

From https://simplestudies.edublogs.org

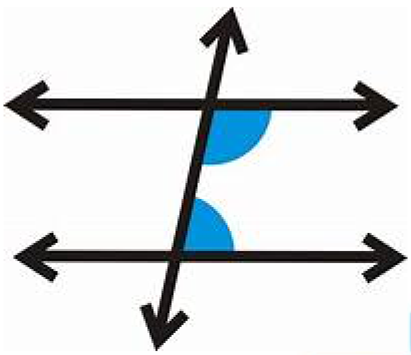
    - By looking at the largest exponent of the polynomial, you can determine its degree and therefore its roots.
- **Vertical Angles Theorem**: All vertical angles are congruent.
- **Right Angles Theorem:** All right angles are congruent.
- **Perpendicular Bisector Theorem**: A point that lies on a perpendicular bisector of a segment is equidistant from the endpoints of the segment.
- **Converse of the Perpendicular Bisector Theorem**: If a point is equidistant from the endpoints of a segment, then the point is on the perpendicular bisector of the segment.
- **Angle Bisector Theorem**: If a point lies on the bisector of an angle, then it is equidistant from the two sides of the angle.
- **Converse of the Angle Bisector Theorem**: If a point in the interior of an angle is equidistant from the sides of the angle, then it is on the bisector of the angle.
- **Triangle Midsegment Theorem**: The segment that connects the midpoints of two sides of a triangle is parallel to the last side and half as long as it.
- **30-60-90 Triangle Rules**: The Hypotenuse is calculated by multiplying the shortest leg by two. The long leg of the triangle is calculated by multiplying radical three by the short leg. Finally, the short leg is calculated by dividing the hypotenuse by two.
- **45-45-90 Triangle Rules**: The Hypotenuse is calculated by multiplying radical two by one of the legs of the triangle. To find the length of one of the legs, divide the hypotenuse by radical two.
    - For 45-45-90 triangles, the lengths of the two legs are equal.
- **Segment addition postulate**: When given two points, the third must be on the line segment.

Types of Angles

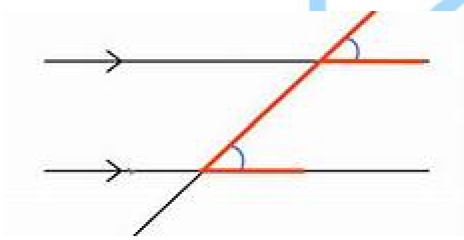
- Alternate Interior Angles



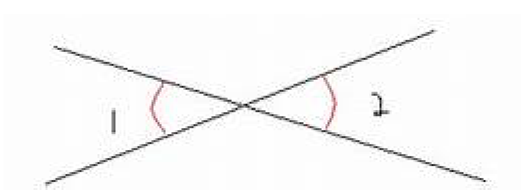
- Same-Side Interior Angles



- Corresponding Angles



- Vertical Angles



- Supplementary Angles

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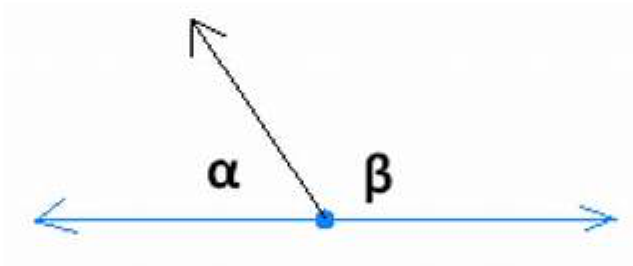
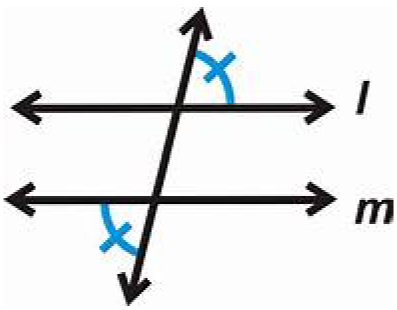
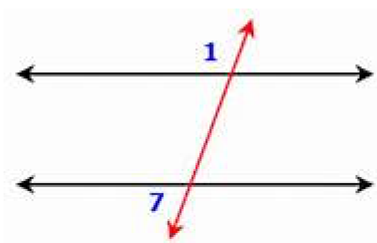


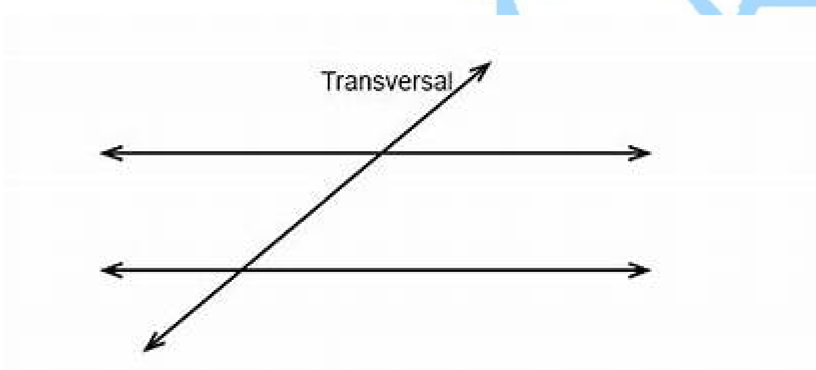
- Alternate Exterior Angles



- Same-Side Exterior Angles

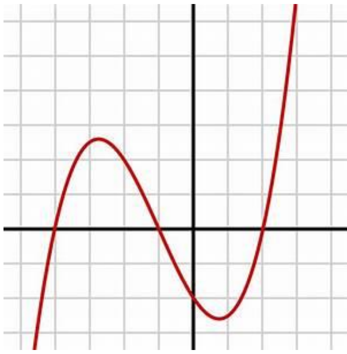


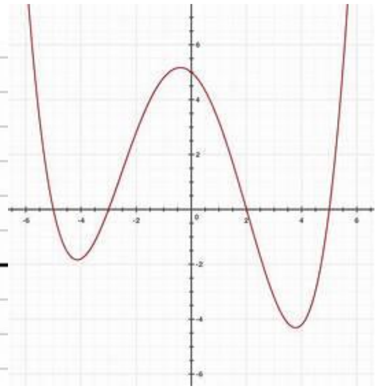
- Transversal



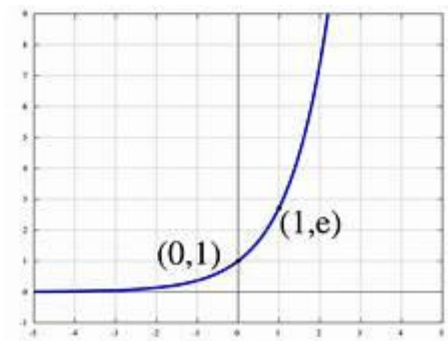
Different types of functions

- Polynomial Functions

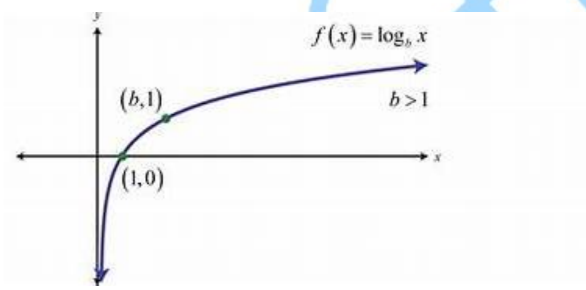




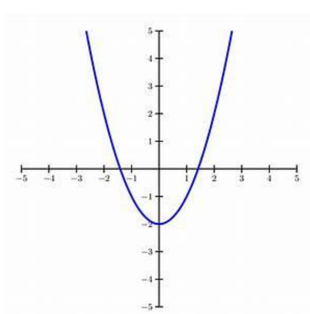
- Exponential Functions



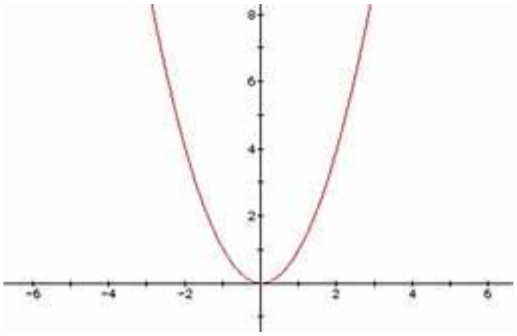
- Logarithmic Functions



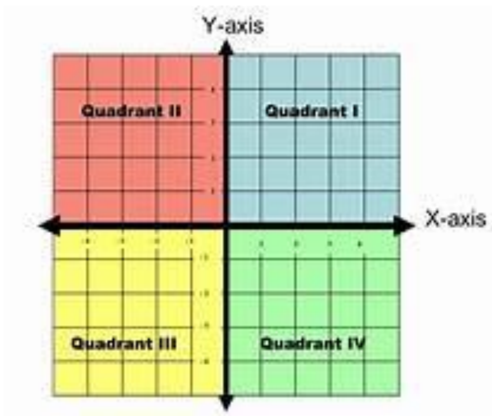
- Parabola



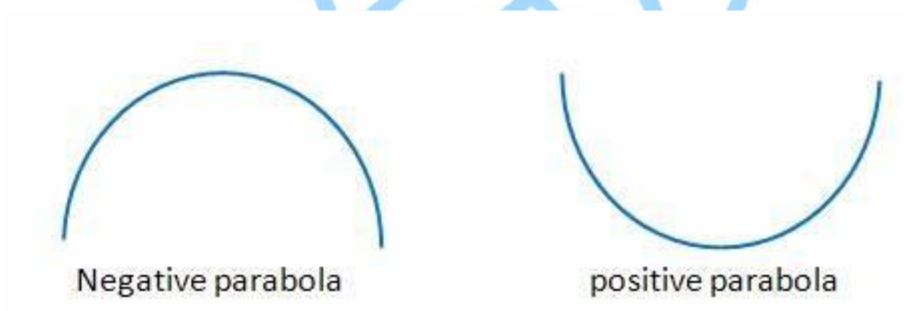
- Parent Quadratic Function



- Quadrants



- Negative/Positive parabolas
    - A positive parabola opens upward, while a negative one opens downward



Trigonometry

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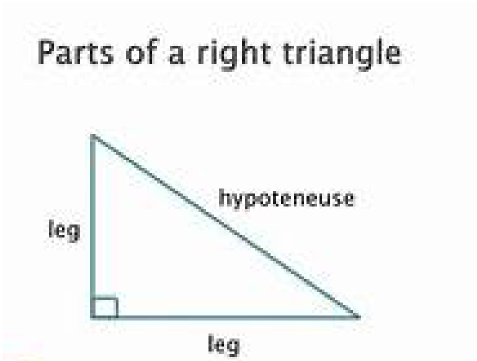


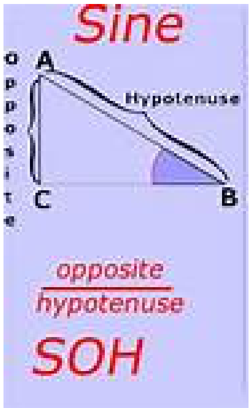
Proving Triangles Congruent

Triangles can be proven congruent these ways:

- Three congruent sides (SSS).
- A congruent angle, side, and angle (ASA).
- Two congruent angles, then a congruent side (AAS).
- A congruent RIGHT angle and a congruent leg (AL).
- A congruent side, angle, and another side (SAS).

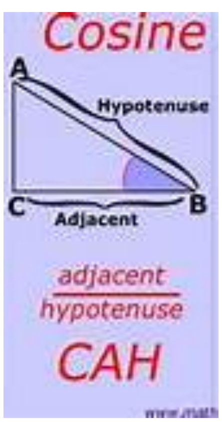
Solving Triangles Using Sine (Soh)

- When you're given an angle, but need to find a missing side of a triangle you can use Sine. The trigonomic ratio for Sine is the opposite side divided by the hypotenuse.
- Determine where the missing side is and whether it is the opposite leg of the triangle or the hypotenuse. Use X to represent the missing side and determine the ratio.
- Now is the time to use the angle you are given.
    - You will be creating a ratio and setting it equal on both sides.
    - Use Sine, followed by the given angle and set it equal to the ratio, opposite divided by the hypotenuse of the triangle.
    - Put X to represent which one the missing side was.
- Then multiply by X on both sides to cancel the denominator of the ratio and plug it into the calculator to determine your answer.



Solving Triangles Using Cosine (Cah)

- When you're given an angle, but need to find a missing side of a triangle you can use Cosine. The trigonomic ratio for Cosine is adjacent divided by the hypotenuse.
- Determine where the missing side is and whether it is the adjacent leg of the triangle or the hypotenuse. Use X to represent the missing side and determine the ratio.
- Now is the time to use the angle you are given.
    - You will be creating a ratio and setting it equal on both sides.
    - Use Cosine, followed by the given angle and set it equal to the ratio, adjacent divided by the hypotenuse of the triangle.
    - Put X to represent which one the missing side was.
- Then multiply by X on both sides to cancel the denominator of the ratio and plug it into the calculator to determine your answer.

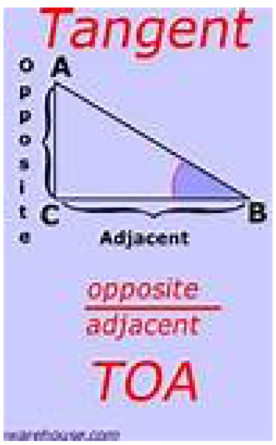


Solving Triangles Using Tangent (Toa)

- When you're given an angle, but need to find a missing side of a triangle you can use

Tangent. The trigonomic ratio for Tangent is the opposite divided by the adjacent.

- Determine where the missing side is and whether it is the opposite leg of the triangle or the adjacent leg. Use X to represent the missing side and determine the ratio.
- Now is the time to use the angle you are given.
    - You will be creating a ratio and setting it equal on both sides.
    - Use Tangent, followed by the given angle and set it equal to the ratio, opposite divided by the adjacent leg of the triangle.
    - Put X to represent which one the missing side was.
- Then multiply by X on both sides to cancel the denominator of the ratio and plug it into the calculator to determine your answer.



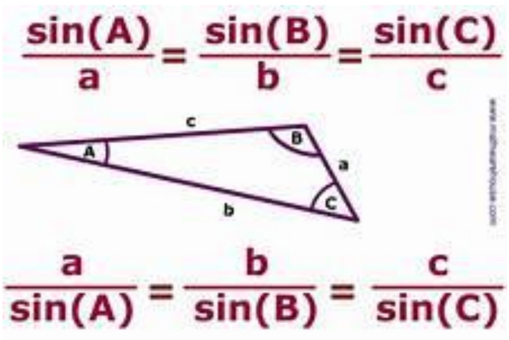
Finding the measure of missing angles

- You can determine the measure of a missing angle by using Sine, Cosine, and Tangent to the negative power.
- Simply set up your ratios as normal, but put X as your missing angle measure and fill in the given leg measurements. Then multiply by Sine, Cosine, or Tangent to the negative power to both sides, which therefore cancels itself out. You will then be left with the missing angle measure represented by X, set equal to the ratio to the negative power of Sine, Cosine, or Tangent. Plug the equation into the calculator to solve.

Law of Sines

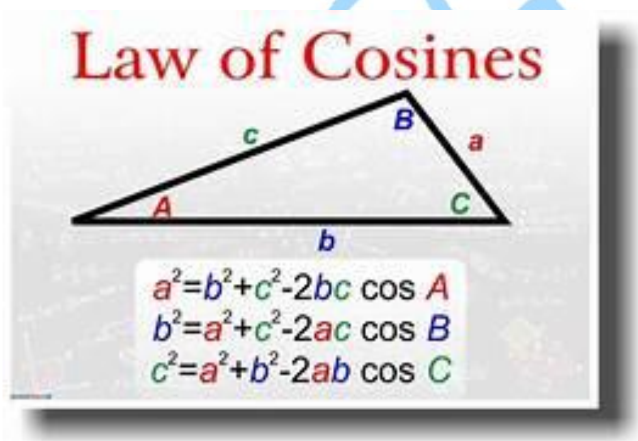
- The law of sines can be used to find missing angles or sides when you are not given a right triangle.

- The lowercase letters are always opposite from their uppercase counterparts.
- Simply plug in the measurements you are given to determine the missing ones.
- Each ratio should be equal to one another.



Law of Cosines

- The law of cosines can be used to find the lowercase counterparts.
    - Simply plug in the measurements you are given into the equation and solve using a calculator.



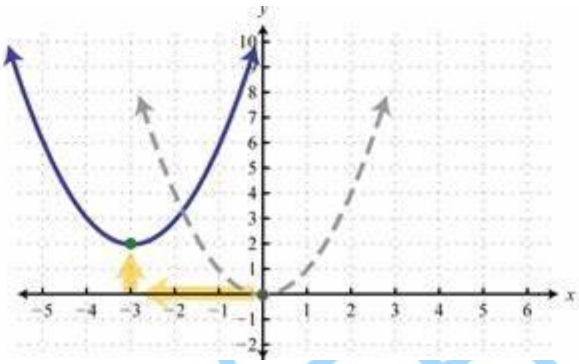
Translations, Reflections, Rotations, Dilations

- **Translations** are any transformation done to the function. Since there is a negative sign in the parent function of the parabola, any shift is opposite.
    - For example, addition shifts the parabola to the left and subtraction shifts the

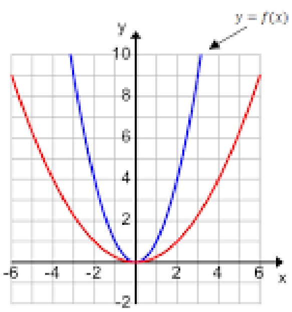
parabola to the right.

- A shift to the graph is done by adding or subtracting to the X value, while a shift up or down is done by adding or subtracting to the Y value.
- To stretch the parabola, add to the A value, while compressing is done by subtracting from the A value.
- The parabola also opens upward or downward based upon the A value. If the A value is negative the parabola opens downward, while if the A value is positive, the parabola opens upward.

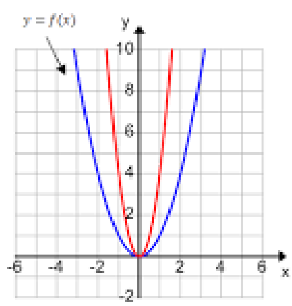
◦ This specific translation would shift the parabola three units to the right and one unit down.



- **Dilations** are a stretch or compression to the function. When given a factor to dilate by, multiply every point by that factor.



(Compression)



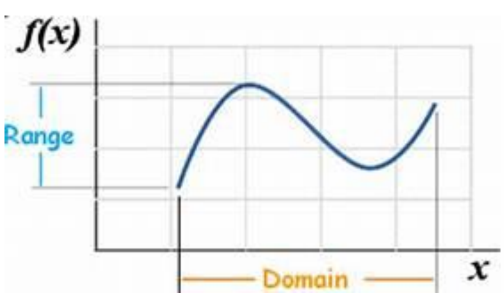
(Stretch)

- **Reflections** mirror the parabola over a specific point. There are different types of reflections:
  - If the reflection is over the X-Axis, then the points (x, y) convert to (x, -y).
  - If the reflection is over the Y-Axis, then the points (x, y) convert to (-x, y).
  - If the reflection is over y=x, then the points (x, y) convert to (y, x).

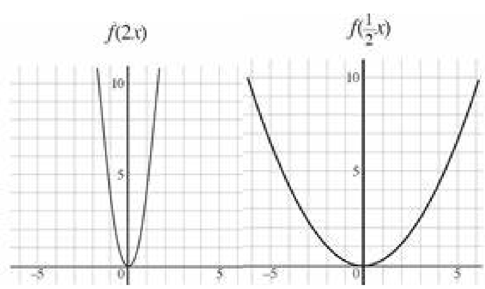
- If the reflection is over y=-x, then the points (x, y) convert to (-x, -y).
- **Rotations** are a type of transformation that turns the parabola around a fixed point.
  - A rotation 90 degrees counterclockwise changes (x, y) to (-y, x).
  - A rotation 180 degrees can go in either direction and changes (x, y) to (-x, -y).
  - A rotation 270 degrees counterclockwise changes (x, y) to (y, -x).

Solving Quadratic Equations

- The parent function is f(x) = x^2
- To find the Axis of Symmetry (AOS) in an equation, use (-B)/(2A).
- To find X value of the vertex, plug in the axis of symmetry into the X value of the equation.
  - The product of the equation is the Y value of the vertex.
- The Y-intercept is found by plugging in zero for the X value of the equation.
- The maximum and minimums of a function are equal to the vertex.
- The range goes from the lowest point to the highest point.
  - It is calculated by determining if the function has a minimum or maximum. The range will be either negative infinity to the maximum or infinity to the minimum.
- The domain is from the farthest left point to the farthest right.
  - The domain is normally always negative infinity to infinity.
- The A value tells us how stretched or compressed a function is. A function is stretched when A is greater than one and compressed when A is less than one, but greater than 0.



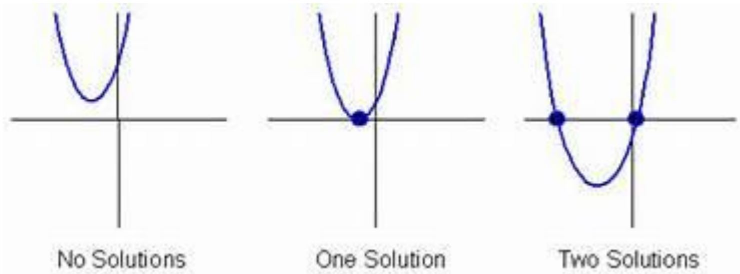
(Range Vs. Domain)



(Stretch Vs. Compression)

- The zeroes of a function are calculated by using synthetic division or setting the equation to 0 and solving.

- To solve linear quadratic systems, set the two expressions equal to each other and solve for X. Plug in both of the answers as X to find the Y coordinate. Write your answer as a pair. There are three types of solutions: Two solutions, one solution, and zero or infinite solutions.



- You can solve quadratic equations using factoring.
    - First, put the equation into standard form. Multiply the A value by the C value. Find factors of that product that add up to the B value of the equation. Once you have found the factors that equal your B value, separate them into two separate equations and set them each to 0. Then solve to find X. If there is a perfect square, then there is only one solution, but if there is a difference of squares, then there are two solutions.
- You can solve quadratic equations using the square root method. To use the square root method, move C over to the other side of the equation and take the square root of **BOTH** sides to solve.
- You can solve quadratic equations by completing the square. To solve quadratic equations by completing the square, put the equation into standard form and bring C to the other side by subtracting.
    - Be sure A is equal to one and if not, divide.
    - Add (b/2)^2 to **BOTH** sides of the equation to complete the square. Factor the perfect square trinomial you created and use the square root method to solve.
- You can solve quadratic equations using the quadratic formula. Simply plug the terms into the equation and use a calculator to solve.
- When solving quadratic word problems, there are many shortcuts you can use.
    - When a problem asks for the Maximum height, it is simply the vertex.
    - If a problem asks when something will hit the ground, set your equation to 0 and factor from there.

- If a problem asks for the starting height, that is represented by the C value.
- If the problem asks for a certain height of an object at a given time, or vice versa, set your equation to whatever the given height is and factor, or if you are given a specific time, plug it into the X value of the equation and solve.

Vertex vs. Standard Form

- In Vertex Form:
  - The vertex is found at (h, k).
  - The axis of symmetry is at x = h
  - K is the minimum or maximum.
  - The range is K plus or minus infinity
  - To convert to vertex form from standard form, find the axis of symmetry and plug it into the vertex form equation as H. Then factor the equation and multiply it out. The product is the K value of the vertex form equation. Plug the answers you got into the equation as H and K. There is no need to do anything to find the A value because it stays the same.

Vertex Form

$$y = a(x - h)^2 + k$$

- In Standard Form:
  - The vertex is found by plugging the axis of symmetry into the equation as X.
  - The axis of symmetry is found by dividing (-B)/(2A).
  - The minimum or maximum is found by completing the square to convert it into vertex form, and then finding the minimum or maximum
  - The C value is the Y-intercept.
  - Converting to standard form is done by simplifying the vertex form equation by multiplying it out and combining like terms.

Standard Form

$$y = ax^2 + bx + c$$

From https://simplestudies.edublogs.org

Monomials, Binomials, & Polynomials

- To add or subtract, first put both of the expressions into standard form.
  - You can line up the second expression under the first one like a column and add or subtract like normal.
    - Be sure that you are adding or subtracting the same powers with each other.
  - Or you can write the terms as one long expression and combine like terms to simplify.

$(6x^2 + 3x - 4) + (x^2 - 7)$

$$\begin{array}{r} 6x^2 + 3x - 4 \\ \underline{x^2 + - 7} \\ 7x^2 + 3x - 11 \end{array}$$

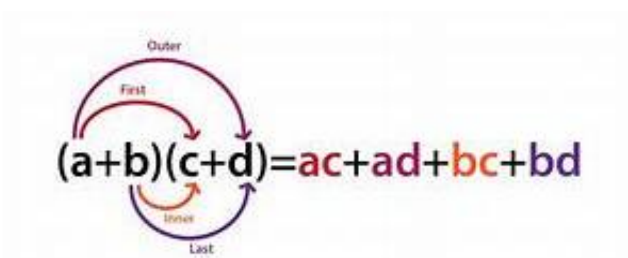
Solution:
$7x^2 + 3x - 11$

(Addition)

$$(2x^2 + 5x - 2) - (6x^2 - 3x - 1)$$
$$= 2x^2 + 5x - 2 - 6x^2 + 3x + 1$$
$$= -4x^2 + 8x - 1$$

(Subtraction)

- To multiply, use the FOIL Method.
  - To factor using the FOIL method, multiply the first term of the first binomial to the first term in the second binomial. Then multiply the first term by the second term in the second binomial. Repeat the steps for however many terms there are.



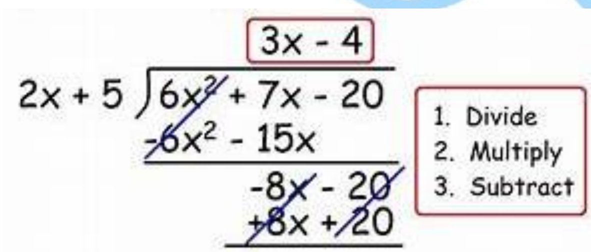
(FOIL Method)

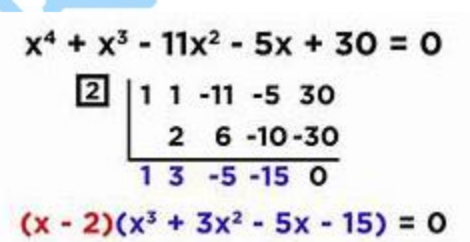
- To divide, you can use long division or synthetic division.
  - Long division can be used in any case, unlike synthetic division, so the coefficient does not need to be equal to one.
    - When using long division, first write your equations as if normally

dividing. Then, divide the first term in the divisor by the dividend and put your answer in top. Subtract the product of the divisor and the answer from the dividend. Then, bring down the remainder. Move onto the next term in the dividend and follow the same steps until you complete the problem.

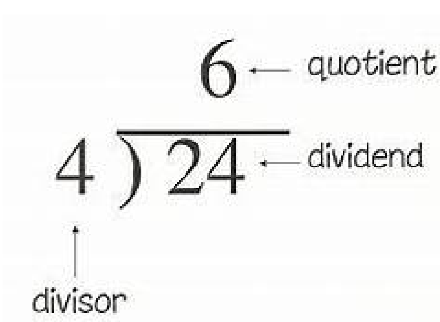
  - If you get a remainder, put the remainder over the divisor and add it onto the quotient you came up with.

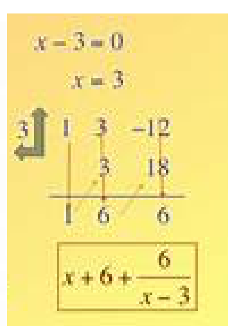
- Synthetic division can only be used when the coefficient of the divisor is equal to one.
  - Set the divisor equation to zero to determine which number should be put in the division box. List only the coefficients of each term in descending order of their degree. Bring the first coefficient down and multiply it by the number in the division box. Bring the product to the next column and multiply the number you brought down with the number in the division box. Repeat these steps until you finish the problem. Your answer is the numbers in the row and the last number is your remainder.
  - Your remainder is written as a fraction over the divisor. If the last number is zero, then there is no remainder.





(Long Division) (Synthetic Division)

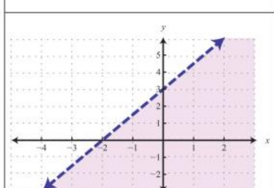
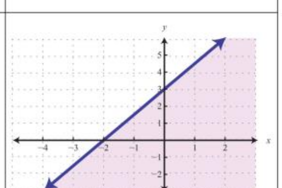




(Parts of Division) (Remainders)

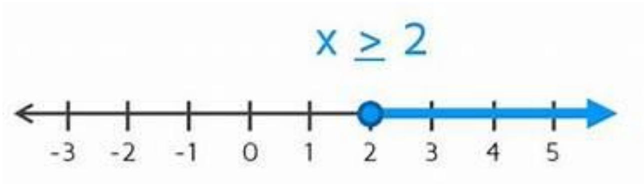
Inequalities

- To solve inequalities, first note the different signs. The sign < means greater than and the sign > means less than. If these signs have a line underneath them, then the sign includes the number. In other words, it is greater/less than or <u>equal to</u>.
- When you have advanced inequalities, the main focus is to separate X and get it all alone.
- When graphing boundaries, simply graph the normal linear expression but shade in the area to the solution set.
    - Shade in the direction based on if it's greater than or less than. Be sure to draw a fully solid lane if the inequality is equal to, or a dotted line if the inequality is just greater than or less than.
- Remember some rules when solving inequalities.
    - When you divide by a negative, the inequality flips.
    - Also note that on a number line, an arrow to the right indicates greater than and an arrow to the left indicates less than.
    - Closed circles also represent greater/less than or equal to, so the number that the closed circle is put on would be included in the solution set.
    - Open circles on a number line indicate less than or greater than so the number would not be included in the solution set.
- When graphing boundaries, this shows the solution set to an inequality. If you have two inequalities graphed with two solution sets, where they overlap each other would be the solution to both of them. Any point within the boundary would work as a solution.
- If you have absolute value bars in an inequality, solve for X or determine the value of the number from 0 to cancel the bars out. Then continue solving.

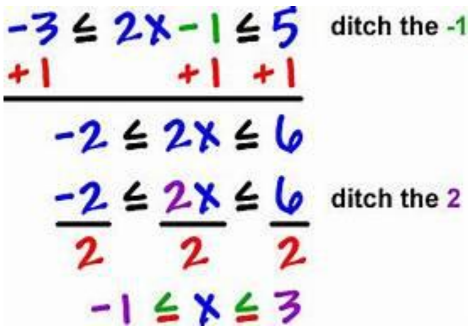
Non-Inclusive Boundary	Inclusive Boundary
$y<\frac{3}{2}x+3$	$y\leq\frac{3}{2}x+3$
	

(Shaded Boundaries of Inequalities)

From https://simplestudies.edublogs.org



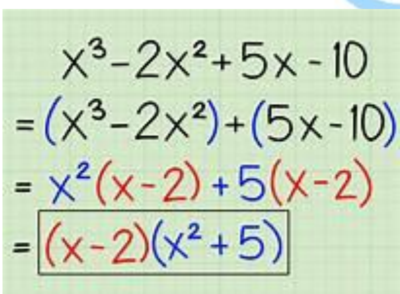
(Shaded in Circles on a Number Line)



(Solving Inequalities)

Factoring, Radicals, and Exponents

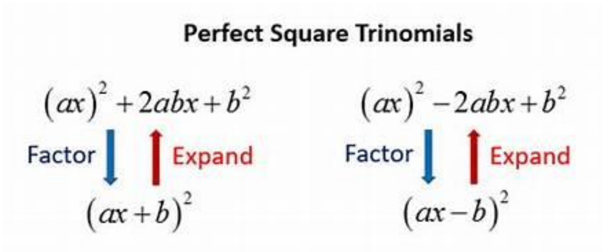
- When factoring, you can either factor by grouping or using the FOIL method.
  - To factor by grouping, put the equation into standard form. Then, multiply the A value by the C value. Determine factors of that product that add up to the B value of the equation. Group the like terms together and set the two equations to 0. Solve for x.



(Factor by Grouping)

- There are some special cases such as the difference of squares and perfect square trinomials.
  - For the difference of squares, use the formula (a-b)(a+b).
  - For perfect square trinomials, use (ax+b)^2 or (ax-b)^2.
    - You can tell that you have a perfect square trinomial if the first and last terms are perfect squares, or if the coefficients of the middle term are twice the square root of the last term multiplied by the square root of

coefficient of the first term.

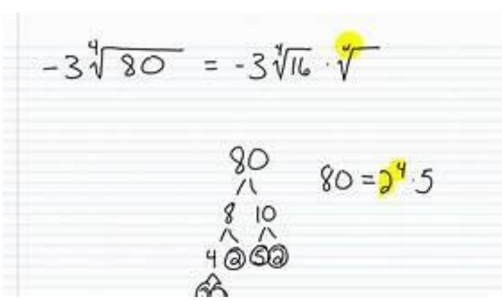


- You can not have radicals in the denominator or it'd be considered irrational, so you must multiply to get rid of them.
  - You can either multiply the radical by itself if it's a square root, or multiply by the exponent needed to take out the greatest square root to cancel the radical out.

$$\frac{\sqrt{16x^5y^4}}{\sqrt{2xy}} = \sqrt{\frac{16x^5y^4}{2xy}}$$
$$= \sqrt{8x^4y^3}$$
$$= \sqrt{4 \cdot 2 \cdot (x^2)^2 \cdot y^2 \cdot y}$$
$$= 2x^2y\sqrt{2y}$$

(Simplifying & Rationalizing Denominators)

- Sometimes you can have an index greater than two. In these cases, break down the coefficients and exponents into their simplest powers using a number tree for example. Then, take out the number as many times as you can based on the index, until you can't anymore. You should stop when the index is higher than the power that you have.
  - For example, the cube root $125x^3$would be 5x.
    - The key to solving these higher power indexes is to break down the terms you have into their simplest form, and then take out what you can.



(Breaking Down Higher Power Indexes)

$$\sqrt{25 \cdot 2}$$

$$\sqrt{25}\sqrt{2}$$

$$\downarrow$$

$$\boxed{5\sqrt{2}}$$

(Pulling out the greatest perfect square)

- There are multiple rules to remember when dealing with exponents.
  - The Product Rule states that when multiplying exponents, if the bases are the same, you can simply add the exponents.
  - The Power of a Power Rule states that when an exponent is being raised to another exponent, simply multiply the exponents together.
  - The Quotient of Powers Rule states that when dividing bases of the same power, simply subtract the bottom exponent from the top exponent.
  - The Power of a Product Rule states that when a base is multiplied by an exponent, use the distributive property and distribute the exponent to each base.
  - The Zero Power Rule states that any base raised to the power of zero is equal to one. Remember you cant have negative exponents so simply convert them to a fraction and bring them down to the denominator and put one as the numerator.

From https://simplestudies.edublogs.org

1. $x^a x^b = x^{a+b}$

2. $x^a/x^b = x^{a-b}$

3. $(x^a)^b = x^{ab}$

4. $(xy)^a = x^a y^a$

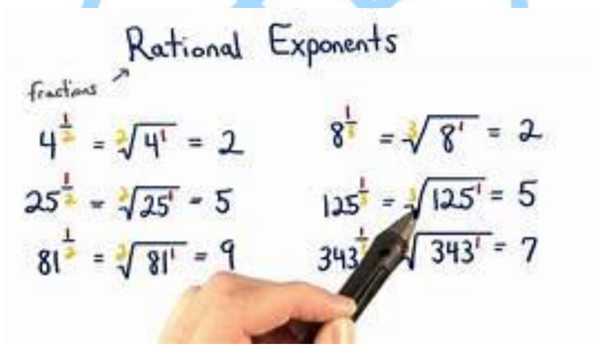
5. $(x/y)^a = x^a/y^a$

6. $x^{-a} = 1/x^a$

7. $x^0 = 1$

(Exponent Rules)

- If you have a fractional exponent, you can take the square root by making the index the denominator and the exponents the numerator. Raise the fractional exponent to its opposite to cancel it out.

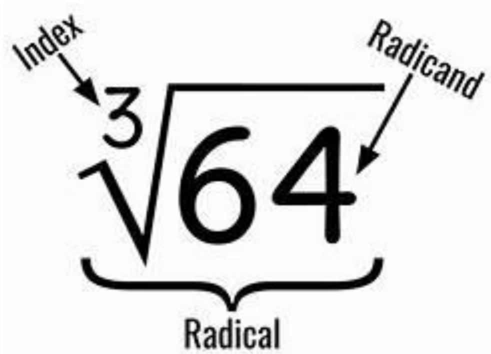


(Solving Fractional Exponents)

Radical Expressions

- To divide radical expressions, write the equation as one big radical and simplify where possible. Then rationalize the denominators by multiplying because you can't have radicals in the denominator (remember to look at the index)! Pull out whatever you can from the radical until it's completely simplified and there are no radicals in the denominator. Whatever you pulled out is your answer.
- When multiplying radical expressions, first multiply the numbers outside of the radical

and leave them on the outside. Then spread out the numbers under the radical into simpler terms and combine like terms. Take the roots of the terms and pull out whatever you can until the terms under the radical are completely simplified.



Using the Powers of i

$$i^0=1 \qquad i^1=i \qquad i^2=-1 \qquad i^3=-i \qquad i^4=1$$

- If you have more than the 4th power, simply divide the exponent by 4 and the remainder is your power of i.
- Remember, anything to the zero power is equal to one, so i to the zero power is also one!
- The power of i stands for an imaginary unit. When you have the power of i in an equation, be sure to simply and convert it to a real number.

Divide Exponent by 4		Remainder	
i^5	$5 \div 4$	1	i^1
i^6	$6 \div 4$	2	i^2
i^7	$7 \div 4$	3	i^3
i^8	$8 \div 4$	0	i^0
i^9	$9 \div 4$	1	i^1
i^{10}	$10 \div 4$	2	i^2
i^{11}	$11 \div 4$	3	i^3
i^{12}	$12 \div 4$	0	i^0

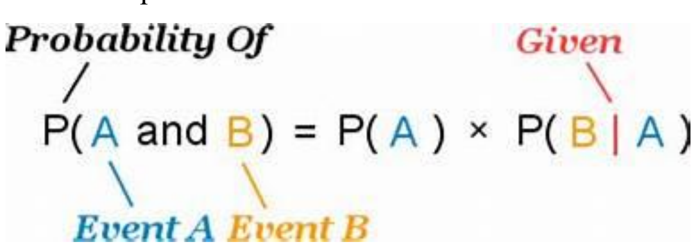
Probability

- When solving probability problems you can be given different scenarios. There is OR, AND (independent), and AND (dependent).
  - OR: “A” represents the probability of event A occurring. “B” represents the probability of event B occurring. Add the probability of event A and B occurring and then subtract it by the probability of BOTH of them occurring.

$$P(A \cup B) =$$

$$P(A) + P(B) - P(A \cap B)$$

  - AND (independent): If the events are independent from one another then the following is true:
    - P(A and B) = P(A) x P(B)
    - P(A/B) = P(A)
    - P(B/A) = P(B)
    - Use this equation if the events above are all true.



  - AND (dependent): If these formulas are not true, then the events are dependent and the following formula should be used:

Probability of event A occured and event B occured

$$P(A \mid B) = \frac{P(A \cap B)}{P(B)}$$

Probability of event A given B has occured

Probability of event B

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Work Cited

Juraschka, Ryan. "Exponent Rules: 7 Key Strategies to Solve Tough Equations." *Prodigy Math Blog*, 17 Apr. 2020, www.prodigygame.com/blog/exponent-rules/#:~:text=%20Exponent%20rules%20%201%20Product%20of%20powers,being%20raised%20by%20another%20power.%0A%28x3%293%20%3D...%20More.

"Intro to Exponents (Video) | Exponents." *Khan Academy*, Khan Academy, www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponents/v/introduction-to-exponents.

Stapel, Elizabeth. "Long Polynomial Division." *Purplemath*, www.purplemath.com/modules/polydiv3.htm.

Stapel, Elizabeth. "Synthetic Division." *Purplemath*, www.purplemath.com/modules/synthdiv.htm.

Stapel, Elizabeth. "Special Factoring: Differences of Squares." *Purplemath*, www.purplemath.com/modules/specfact.htm.

"Factoring Perfect Square Trinomials (Solutions, Examples, Videos)." *Www.onlinemathlearning.com*, 2005, www.onlinemathlearning.com/perfect-square-trinomial.html.

"Honors Algebra 2 Theorems Flashcards." *Quizlet*, quizlet.com/17417366/honors-algebra-2-theorems-flash-cards/.

"Algebra 2 Math Terms Flashcards ." *Quizlet*, quizlet.com/480021372/algebra-2-math-terms-flash-cards/.

"Powers of i." *Varsity Tutors*, www.varsitytutors.com/hotmath/hotmath_help/topics/powers-of-i.

"Solving Inequalities." *Math Is Fun*, www.mathsisfun.com/algebra/inequality-solving.html.

"Adding and Subtracting Polynomials." *Math Is Fun*, www.mathsisfun.com/algebra/polynomials-adding-subtracting.html.

"Algebra II Vocabulary Words - Algebra II." *Google Sites*, sites.google.com/site/algebrahelp2/vocabulary-words.

Google Images

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