

Algebra II Vocabulary *(from the summer packet)*

1. In the **slope-intercept form** of the equation of a line, $y = mx + b$, m is the slope and b is the y-intercept. (topic A)
2. The linear equation $y = mx + b$ is written in **slope-intercept form**. The slope of the line is m . The y-intercept is b . (topic E)
3. As you solve a system of equations, remember the following ideas.
 - a. Lines that have the same slopes but different y-intercepts are parallel and will never intersect. These systems are **inconsistent**.
 - b. Lines that have both the same slope and the same y-intercept are the same line and will intersect at every point. These systems are **dependent**.
 - c. Lines that have different slopes will intersect, and the system will have one solution. These systems are **independent**. (topic G)

4. An exponential expression is an expression in the form a^x . (topic K)

5. Properties of Exponents

- a. **To multiply exponential expressions with the same base**, add the exponents: $a^m \cdot a^n = a^{m+n}$. (topic K)
 - b. **To divide powers with the same base**, subtract the exponents. (topic L) $\frac{4^5}{4^3} = 4^2$
 - c. **To raise a power to a power**, multiply the exponents. $(x^3)^2 = x^6$ Every number and variable inside parenthesis is being raised to the power to the right of the parenthesis.
 $(4x^3)^2 = (4^2 x^{3(2)}) = 16x^6$ (topic M)
 - d. When a nonzero number a has a **zero exponent**, then $a^0 = 1$.
 - e. For any nonzero number a and any integer, n , $a^{-n} = \frac{1}{a^n}$
 - f. For any nonzero numbers a and b and any integer, n , $\left(\frac{a}{b}\right)^{-n} = \frac{a^{-n}}{b^{-n}} = \frac{b^n}{a^n}$ (topic N)
6. To write a number in **scientific notation**, follow these steps:
- Move the decimal to the right of the first integer.
 - If the original number is greater than 1, multiply by 10^n , where n represents the number of places the decimal was moved to the left.

- If the original number is less than 1, multiply by 10^{-n} , where n represents the number of places the decimal was moved to the right. (topic O)
7. A linear function defined by an equation of the form $y = kx$, where $k \neq 0$, represents **direct variation**. The constant, k , the slope of the line, is called the **constant of variation**. **The y intercept is (0,0)**. (topic P)
 8. **Term**- each part of the polynomial that is being added (topic S)
 9. **Like terms**- terms that contain the same variables raised to the same power; only the numerical coefficients are or may be different. (topic S)
 10. **To multiply two binomials, follow these steps:** Multiply each term in one binomial by each term of the other binomial. Combine like terms. (FOIL or “sneaky squares”) (topic T)
 11. For every positive real number, a , both a and $-a$ satisfy the equation $|x| = a$. To solve an absolute value equation, first rewrite the equation as an equivalent equation with an absolute value expression on the left side by itself. Then rewrite this equation as a compound equality using the rule that if $|x| = a$ then $x = a$ or $x = -a$. (topic W)

12. Forms of the Linear Equation

- a. **Slope intercept** Form: $y = b + ax$ or $y = mx + b$ a or m is the slope and b is the y-intercept
- b. **Point slope** Form: $y = m(x - x_1) + y_1$ (x_1, y_1) is a point on the graph and m is the slope
- c. **Standard** or General Form: $Ax + By = C$ A, B, C are constants (topic X)