

Common Core Algebra Regents

What you need to know and do.

- Get a good night's sleep. Eat a healthy breakfast. Don't be late to school.
- Bring a clear zip lock bag with pencils, pens, calculator, and extra batteries for your calculator. & your ID too!
- You CANNOT bring your cell phones or any other device to the test site.
- You CAN bring a water bottle into the test site but the label must be taken off.
- Some of your test can't be done in pencil. Part I work can be done in pencil, but the multiple choice scantron must be bubbled in ink. Part II, III, and IV must be done in ink, except for the graphs which are left in pencil. Equations must be in pen.
- No scrap paper allowed, and no white out, but you may highlight!

Some formulas that are not on the Reference Sheet and other things to remember.

- Line of symmetry of a quadratic function or parabola ($x = \frac{-b}{2a}$). Substitute the x-value to get the y-value, this will be the vertex point.
- Factoring completely; check GCF first, then DOPS, then TRINOMIAL. (If you need to do the trick, do it off to the side.)
- Linear Equation $y = mx + b$; Point Slope Form $(y - y_1) = m(x - x_1)$.
- Quadratic Equation $y = ax^2 + bx + c$; vertex form $y = (x - h)^2 + k$ where (h,k) is the vertex.
- Rate of Change; $\frac{f(x_2) - f(x_1)}{x_2 - x_1}$
- Exponential Growth: $A = p(1 + r)^n$ p is the initial value and r is the percent increase as a decimal or fraction.
[$y = p(1 + r)^x$]
- Exponential Decay: $A = p(1 - r)^n$ p is the initial value and r is the percent decrease as a decimal or fraction.
[$y = p(1 - r)^x$]
- Exponential Growth/Decay: $y = a \cdot b^x$ (if $a > 0$ and $b > 1$, it represents Growth; if $a > 0$ and $0 < b < 1$, it represents Decay)
- To find x-intercepts, set y equal to 0 and solve. The y-intercept, set x equal to 0 and solve.
- Completing the square: to get constant, divide b by 2 and square it. $c = \left(\frac{b}{2}\right)^2$
- Arithmetic Recursive Formula: $a_n = a_{n-1} + d$ -Geometric Recursive Formula: $a_n = a_{n-1} \cdot r$

What you need to know about your calculators.

- After calculator is cleared, turn DIAGNOSTIC ON by going to 2nd CATALOG (0) (Scroll to DIAGNOSTIC ON, press Enter and make sure it says DONE)
- To type in Fractions: go to Alpha $Y=$
- The MATH button has the cube root and conversion to fraction (amongst others). If you scroll right to NUM you will see absolute value [abs(].
- The Y = button allows you to enter all functions and view the graph by pressing the GRAPH button and view the x and y values under the TABLE button (2nd GRAPH).
- The WINDOW button allows you to change the min and max x and y values and the scale when graphing.
- The TBLSET button (2nd WINDOW) allows you to change the scale. (Instead of going by ones, you can go by 0.5, 0.25, etc.).
- ZOOM button allows you to see desired part of the graph. We usually have it on Zoom Standard or Zoom Stat when graphing scatter plots.
- When solving Systems of Equations, you can enter the equations in Y = then go to 2nd, CALC (TRACE), Intersect (#5), ENTER, ENTER, ENTER. (OR go to table and see where Y1 and Y2 are equal.)
- Make sure when entering in an equation or equations in Y =, make sure Plot is not highlighted. If it is, scroll to it and press Enter.
- When graphing Scatter Plots or Box and Whisker Plots, plot must be turned on. Go to 2nd, STAT PLOT(Y =), ON should be highlighted and the graph that looks like a scatter plot (first one) or box and whisker (5th one) should be highlighted.
- To enter in univariate data, go to STAT edit and enter the data in L1.
- To calculate mean (\bar{x}), standard deviation (population: σ_x sample: S_x , median, minimum, maximum, Q1, and Q3, go to STAT, scroll right to CALC, and press 1 (1 - Var Stats), L1, and then ENTER. (If the data has a frequency column, it must be entered under the L2 column - after 1-Vars Stats, it should say L1,L2. The new calculator should have L2 next to frequency).
- To calculate the variance, (standard deviation squared). Go to VARS, Statistics, #3 or #4, and x^2 .
- To enter in bivariate data, go to STAT edit and enter the data in L1 and L2. (It might be a good idea to see what your data looks like in a scatter plot.)
- To calculate Linear Regression and the Correlation Coefficient (r), go to STAT, scroll right to CALC then LINREG(ax+b) L1,L2, Y1- if you want to see the graph of the line. (New calculators - make sure Frequency does not say L2). (To get Y1 to show, go to VARS, scroll right Y-Vars, ENTER ENTER.) (Other regressions include: Quadratic (QUADREG) and Exponential (EXPREG)
- To see the Linear Regression in the scatter plot, go to Y =, Vars, (#5) Statistics, EQ, #1 RegEQ, Enter, Graph or Zoom 9.
- You can always reset your calculator at any time (press: 2nd,+,7,1,2) just don't forget to turn the DIAGNOSTIC ON.
- Inequality Symbols 2nd Math (Test)
- To get a list of factors for the "c-term"(when factoring) go to y =, put the #/x & then go to the table