Welcome to Mrs. Roumbos' 8th Grade
Algebra 1 Next Generation Regents Math Class!!

Tests: Tests will be administered at the end of each unit/topic. Tests will be announced via a calendar. Students must complete their test in pencil. They must also bring a calculator & something to do in case they finish the test early. If they don't bring a calculator, they will lose points off their test.

Review: The day prior to a test will be a review day. The students will work on a review packet that must be finished for homework. They also will be given an extra review packet. If the student fails to complete the extra review packet, points will be taken off and they will receive a detention. Copies of all the review and extra review packets can be found on my website.

Quizzes: Quizzes are usually given mid-way through the unit. Quizzes will be announced via a calendar. Questions will be based on classwork and homework problems. Students must complete their quizzes in pencil. They must also bring a calculator and something to do in case they finish early. If they don't bring a calculator, they will lose points off their quiz.

Grade Sheet: The students will be given a grade sheet to place all their grades on if they would like one. Grades may also be found on infinite campus.

Homework: Homework will be assigned nightly via a homework board. Some homework will be checked at their seats, others will be collected and graded. If a student is missing three or more homework assignments in a given quarter, they will receive a detention. Students will begin with a 100-homework average, which will count as a quiz grade. They will lose 5 points off their homework grade for each homework missed. They can keep track of their homework grade on infinite campus. Copies of all the homework can be found on my website.

Missed Days: If a student misses class for any reason, they will have until the next day to make up the missed notes, quizzes, homework, etc. **without** being penalized. If the student misses class, but is still in school, it is **their** responsibility to get the work they missed that day and make it up for the next day, or they **will** be penalized. Extra dittos will always be available in the classroom and online. It is the student's responsibility to find out what they missed. If the student misses a quiz or a test, they will have to take it the next day that they are in class. Copies of all the notes can be found on my website.

Daily Supplies: The following supplies are needed every day:

- Binder with plenty of paper (Divided into the following two sections: Notes/ Homework, Tests/Quizzes)
- Calculator: TI-84 Plus graphing calculator (FYI-students will only be able to use the TI-30XIIS calculator in Earth Science) Points will be deducted if you do not have a calculator on the day of a test or quiz!
- Pencils ONLY!
- Other supplies needed: highlighter, graph paper, and a ruler

Take Homes: Take home assignments will be given every other week. On average you will get a week to complete them. You will lose 5 points for each day it is late. You will receive 2 bonus points if you hand it in early. Copies of all take home quizzes can be found on my website. Take homes must be done in pencil.

Midterm: The student's will be given a midterm during midterm week (in January). It will count as 5% of their overall average for the entire year.

Regents: The regents will be given towards the end of June. This grade will go on the student's High School transcript. It will also count as 19% of their overall average for the year. To prepare for it, the students will be given a Regents book to do practice Regents questions from, in-class regents quizzes, and take home regents quizzes.

Extra Help: Help is available after school on Mondays from 2:41-3:01, and Tuesdays and Thursdays from 2:41-3:06.

Final Grade: Quarterly grades will be based on the following items:

- Tests & Quizzes: 70% (tests count twice, quizzes once)
- Homework: (part of the 70%; a quiz grade) 5 points off for each homework not completed. All student start with a quiz grade of 100.
- Take Home Quizzes: 25%
- Class Participation: 5%

(Each quarter is 19% of their overall average for the year)

All failing grades must be signed by a parent/guardian!

Students Signature: _____

Parent(s) or Guardian(s) Signature(s): _____

*****My website: mrsroumbos.weebly.com*****

8th Grade Algebra 1 Next Generation

Dear Students and Parents,

In June, you will be taking the New York State Algebra 1 Next Generation Regents. Since this is a State Regents exam, you must maintain an average of at least an 85 (which is mastery) to continue to be in the Honors class. Therefore, any grade under an 85 must be signed by a parent/guardian. I will do all I can to aid you in passing the Regents, but you have to be dedicated and committed to your work. Practice Regents review will be given often, including over long breaks and at Regents review time. In order for you to be successful in this class this year, you need to put in the time and effort. You should be doing your homework every night, attending the extra help, and constantly practicing and reviewing. The following websites are excellent study resources: mathbitsnotebook.com, Regentsprep.org, jmap.org, and kutasoftware.com. You can also purchase a review book from topical review book company or Barron's Educational Series.

There will also be a midterm given in January that will model the Regents. Since this is a New York State Regents that you will be taking, a lot will be expected of you. Remember this grade will be on your High School transcript that you will send out to colleges. This grade will also count towards your eligibility for Math Honor Society in High School. You will need an unweighted final year math average of 92% for all Regents level math courses (Algebra 1, Geometry, and Algebra 2) and a Mastery level grade of 85% or higher on all Regents examinations (Algebra 1, Geometry, and Algebra 2).

I wish you the best of luck, and let's have a great year!

Sincerely,
Mrs. Roumbos

Student's Signature _____

Parent's Signature _____

The 11 Golden Rules to a Successful Mathematical Year

1) Respect each other and each other's property. Treat others as you want to be treated.

2) Come to class every day and be in your seat by the bell, no getting up during the class. You will lose 5 points every time you are late to class. You will receive a detention for being late.

3) Always be prepared to learn!!! Please bring the following items to class daily:
a pencil, binder with loose leaf, highlighters & a calculator.

4) Always raise your hands; a good citizen is a good listener. You do not have the right to prevent others from learning.

5) Your grade will be based on the following: tests, quizzes, class activities, projects, and homework.

6) Participation is very important! All questions are good questions. You earn points for participation. (5% of your overall average)

7) Homework will be given on a regular basis. Please make arrangements with me or a classmate to get any assignments that you miss due to a class absence. It is your responsibility to get the assignment, not mine! All homework can be found on my website.

Every homework has a due date. Mine, not yours. The following actions will be taken for any missed or incomplete assignments:

a) 3 missed homework's or 2 failed quizzes/tests receives an e-mail home.
b) Assigned detention to make up the assignments.
c) Each homework not completed will result in 5 points off.

8) As adults, we are accountable for our actions. Be honest and fair with me and I will be honest and fair with you.

9) Cellphones are not allowed to be used in class and are not to be taken to the bathroom.

10) Extra help is always available Monday from 2:41-3:01, and Tuesday & Thursdays from 2:41-3:06

11) When the bell rings to end class, please do not leave until told to do so. Do not pack a few minutes before class ends!!

Let's work together to have an enjoyable and productive year.
Remember: I am always here for you.

This is our contract. Please carefully read this over before signing it. Failure to adhere to any of these rules will result in points off your average. If you have any questions let me know.

Student's signature: _____

Parent/Guardian's Signature: _____

My Website:

www.mrsroumbos.weebly.com

8A NOTES & HOMEWORK

ANYTHING UNDERLINED IS A LINK TO THE DOCUMENT

REMIND: TO:81010 MESSAGE: @AROUMBOS1

9/05: GET FORMS SIGNED & BRING IN SUPPLIES
9/06: GET FORMS SIGNED & BRING IN SUPPLIES
9/07: SETS OF NUMBERS CLASSWORK NOTES. HOMEWORK WORKSHEET.
9/08: SETS OF NUMBERS CLASSWORK NOTES. HOMEWORK WORKSHEET
Test: Tuesday 9/19

8R NOTES & HOMEWORK

ANYTHING UNDERLINED IS A LINK TO THE DOCUMENT

REMIND: TO:81010 MESSAGE: @AROUMBOS

9/05: GET FORMS SIGNED & BRING IN SUPPLIES
9/06: GET FORMS SIGNED & BRING IN SUPPLIES
9/07: NUMBER SYSTEM CLASSWORK NOTES. HOMEWORK WORKSHEET.
9/08: CLASSIFYING NUMBERS CLASSWORK NOTES. HOMEWORK WORKSHEET
Quiz: Wednesday 9/14

What can be found on my website:

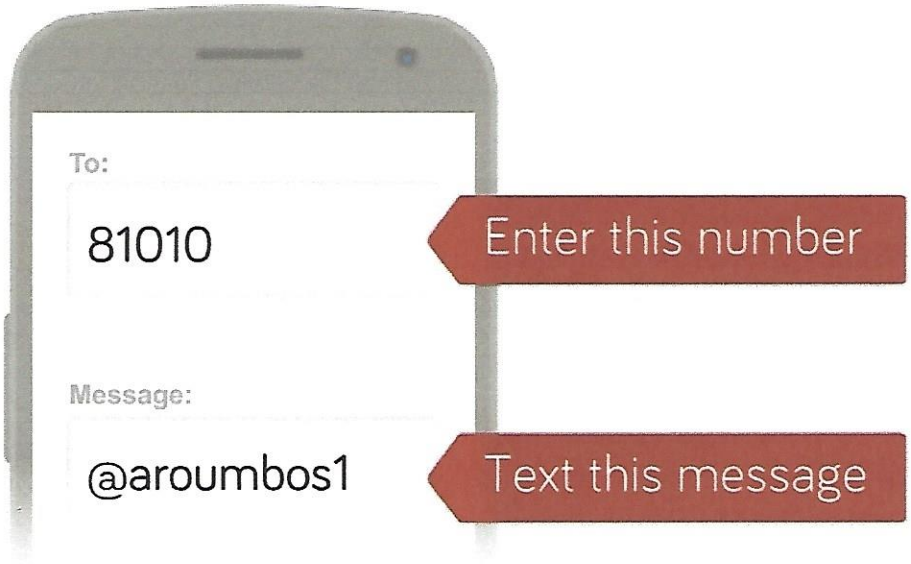
1) Copies of daily Class Notes
2) Copies of daily Homework
3) Homework answer keys
4) Copies of Review packets
5) Copies of Extra Review packets
6) Copies of Take Home Quizzes
7) When upcoming exams are
8) Class Calendar
9) Extra Help Schedule
10) Extra Regents Websites
11) Remind sign up info
12) Google Classroom sign up info

A. Roumbos would like you to join Algebra 1

remind

To receive messages via text, text **@aroumbos1** to **81010**. You can opt-out of messages at anytime by replying, 'unsubscribe @aroumbos1'.

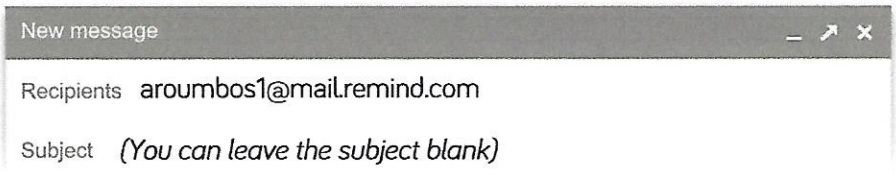
Trouble using 81010? Try texting **@aroumbos1** to **(516) 537-9436** instead.



*Standard text message rates apply.

☆ Sign up with first + last name! ☆

Or to receive messages via email, send an email to **aroumbos1@mail.remind.com**. To unsubscribe, reply with 'unsubscribe' in the subject line.



WHAT IS REMIND AND WHY IS IT SAFE?

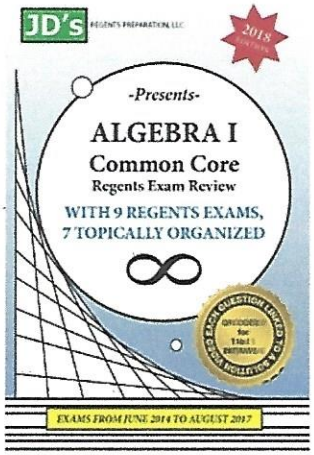
Remind is a free, safe, and simple messaging tool that helps teachers share important updates and reminders with students & parents. Subscribe by text, email or using the Remind app. All personal information is kept private. Teachers will never see your phone number, nor will you see theirs.

Visit remind.com to learn more.

Want some great Review Books for the Regents???
Go to topicalrbc.com and buy:

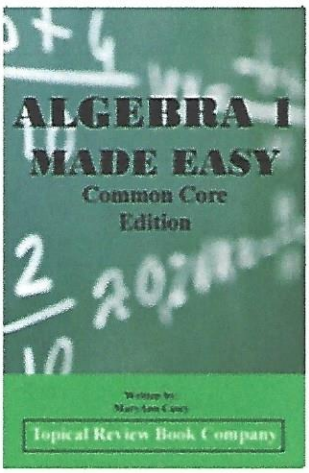
1) JD's Regents Preparation ALGEBRA 1
Common Core Regents Exam Review

SKU: 978-0-578-19711-5
Price: $10.99



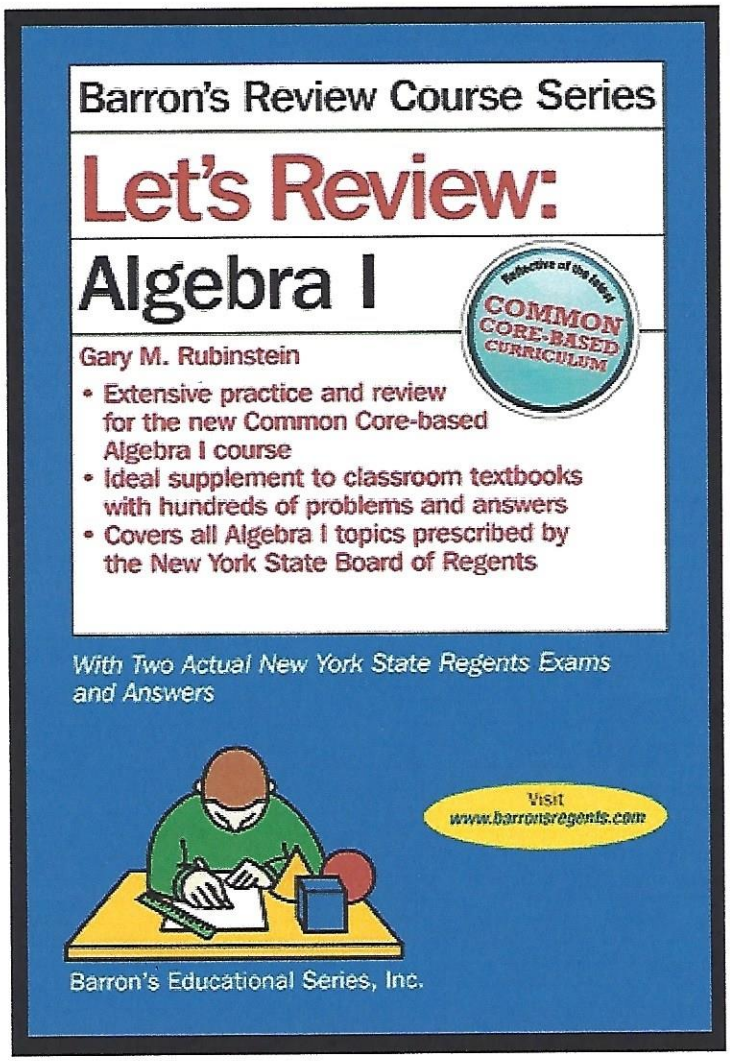
2) Algebra 1 Made Easy (Common Core Edition)

SKU: 978-1-929099-32-0
Price: $3.50



This is another great review book to

help you throughout the year!



Available at Barnes and Noble or Amazon.com

THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

Common Core High School Math Reference Sheet
(Algebra I, Geometry, Algebra II)

CONVERSIONS

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1000 cubic centimeters

FORMULAS

Triangle	$A=\frac{1}{2}bh$	Pythagorean Theorem	$a^2+b^2=c^2$
Parallelogram	$A=bh$	Quadratic Formula	$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$
Circle	$A=\pi r^2$	Arithmetic Sequence	$a_n=a_1+(n-1)d$
Circle	$C=\pi d$ or $C=2\pi r$	Geometric Sequence	$a_n=a_1r^{n-1}$
General Prisms	$V=Bh$	Geometric Series	$S_n=\frac{a_1-a_1r^n}{1-r}$ where $r\neq 1$
Cylinder	$V=\pi r^2h$	Radians	$1\text{ radian}=\frac{180}{\pi}\text{ degrees}$
Sphere	$V=\frac{4}{3}\pi r^3$	Degrees	$1\text{ degree}=\frac{\pi}{180}\text{ radians}$
Cone	$V=\frac{1}{3}\pi r^2h$	Exponential Growth/Decay	$A=A_0e^{k(t-t_0)}+B_0$
Pyramid	$V=\frac{1}{3}Bh$		

Algebra 1 – Formula & Information Sheet

Scientific Notation:
6.5×10^{11}
The first number must be $1 \le n < 10$

Absolute Value:
$|-7| = 7$
$|7| = 7$
Represents distance

Interval Notation:
$(2,7) \leftrightarrow 2 < x < 7$
$[2,7] \leftrightarrow 2 \le x \le 7$

Exponents:

$2^1 = 2$ $\qquad$ $x^m \cdot x^n = x^{m+n}$

$3^0 = 1$ $\qquad$ $(x^n)^m = x^{n \cdot m}$

$5^{-3} = \frac{1}{5^3}$ $\qquad$ $\frac{x^m}{x^n} = x^{m-n}$

$(-4)^2 \neq -4^2$ $\qquad$ $(xy)^n = x^n \cdot y^n$

Properties of Real Numbers:

	ADDITION	MULTIPLICATION
Commutative Property:	$a + b = b + a$	$ab = ba$
Associative Property:	$a+(b+c) = (a+b)+c$	$a(bc) = (ab)c$
Distributive Property:	$a(b+c) = ab + ac$	
Identity:	$a + 0 = a$	$a \cdot 1 = a$
Inverse:	$a + (-a) = 0$	$a \cdot (1/a) = 1$
Zero Property:		$a \cdot 0 = 0$

Literal equations: Use regular equation methods to solve.
$a = b + cd$; solve for c.
$a - b = cd$; $(a - b)/d = c$

Factoring:
Look to see if there is a GCF (greatest common factor) first. $ab + ac = a(b + c)$

$a^2 - b^2 = (a - b)(a + b)$

$(x + a)^2 = x^2 + 2ax + a^2$

$(x - a)^2 = x^2 - 2ax + a^2$

Factor by Grouping:

$x^3 + 2x^2 - 3x - 6$
$(x^3 + 2x^2) - (3x + 6)$ group
$x^2(x + 2) - 3(x + 2)$ factor each
$(x^2 - 3)(x + 2)$ factor

Degree: Degree of monomial=sum exponents
$5x^3$ is of degree 3
x^2y^3 is of degree 5

Undefined:
$\frac{3}{7 - x}$ is undefined when $x = 7$ since the denominator = 0.

Multiply: (distribute or FOIL)

$(x+4)(x+2) = x \cdot x + x \cdot 2 + 4 \cdot x + 4 \cdot 2$
$= x^2 + 6x + 8$

$(a+b)^2 = a^2 + 2ab + b^2$

$(a-b)^2 = a^2 - 2ab + b^2$

Solving Equations:
1. Deal with any parentheses.
2. Combine like terms on each side.
3. Get needed variables on same side.
4. Isolate needed variable (+, -).
5. Find needed variable (x, /).

Exponential Growth/Decay:
Decay: $y = ab^x$
where $a > 0$ and $0 < b < 1$
Growth: $y = ab^x$
where $a > 0$ and $b > 1$

Add Fractions:
Get the common denominator, and add numerators:

$\frac{4x}{3} + \frac{3x}{2} = \frac{8x}{6} + \frac{9x}{6} = \frac{17x}{6}$

Radicals:
Simplify: look for perfect squares.
$\sqrt{50} = \sqrt{25 \cdot 2} = \sqrt{25} \cdot \sqrt{2} = 5\sqrt{2}$
Add: Add like radicals only
$2\sqrt{2} + \sqrt{3} + 3\sqrt{2} = 5\sqrt{2} + \sqrt{3}$

Mult. multiply in front and then multiply inside.
$\left(2\sqrt{2}\right) \cdot \left(3\sqrt{5}\right) = 6\sqrt{10}$

Inequalities:

$8 - 3x \le 16 + x$	Remember to
$-3x \le 8 + x$	change direction
$-4x \le 8$	of inequality when
$x \ge -2$	mult/div by a negative.

Systems:

$y - 5x = 1$ $y + 5x = 9$	*Linear:* substitute; eliminate one variable; or graph.
$y = x^2 - x - 6$ $y = 3x - 1$	*Linear Quadratic:* substitute or graph

For inequality systems, graph.

Pythagorean Theorem:
Right Triangles only. $c^2 = a^2 + b^2$
Triples: 3, 4, 5; 5, 12, 13; 8, 15, 17; 7, 24, 25

Parabola:
$y = ax^2 + bx + c$
$y = a(x - h)^2 + k$
Axis of symmetry: $x = \frac{-b}{2a}$
Roots: where the graph crosses x-axis.

x = abscissa, y = ordinate

Slope: (rate of change)

$m = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$.

Equations of Lines: m = slope
$y = mx + b$ slope-intercept form
$y - y_1 = m(x - x_1)$ point-slope form

Parallel and Perpendicular:
Parallel: slopes are equal.
Perpendicular: slopes are negative reciprocals (flip over and negate)

Error in Measurement:
Relative error = $\frac{|\text{measure-actual}|}{\text{actual}}$; % Error = Relative • 100%

Sequences:
explicit form: $a_n = 3n+1;\ n \geq 1$ (integer)
recursive: $a_1 = 2;\ a_{n+1} = 2a_n$
(built on previous term)
Arithmetic: (+) 2, 5, 8, 11, …
Geometric: (x) 2, 6, 18, 54, …

Function:
A set of ordered pairs in which each x element has only one y element associated with it.
$f(x) = 3x + 4$
$f(3) = 3 \cdot 3 + 4 = 13$

Vertical Line Test: A function passes the vertical line test
Domain: x-values used; **Range:** y-values used
Transformations:
$-f(x)$ over x-axis; $f(-x)$ over y-axis
$f(x+a)$ horizontal shift; $f(x)+a$ vertical shift
$f(ax)$ stretch horizontal; $af(x)$ stretch vertical

Quadratic Equations: $ax^2+bx+c=0$ (Set = 0.)
Solve by factoring, completing the square, quadratic formula.

Factoring:

$x^2 - 5x + 6 = 0$ Set = 0.

$(x-3)(x-2) = 0$ Factors.

$x = 3;\ x = 2$ Roots.

Quadratic Formula:

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

$b^2 - 4ac > 0$ two real unequal roots
$b^2 - 4ac = 0$ repeated real roots
$b^2 - 4ac < 0$ two complex roots $(a+bi)$

Square root property: If $x^2 = m$, then $x = \pm\sqrt{m}$

Completing the square: $x^2 - 2x - 5 = 0$

1. If other than one, divide by coefficient of x^2
2. Move constant term to other side $x^2 - 2x = 5$
3. Take half of coefficient of x, square it, add to both sides
$$x^2 - 2x + \boxed{1} = 5 + \boxed{1}$$
4. Factor perfect square on left side. $(x-1)^2 = 6$
5. Use square root property to solve and get two answers. $x = 1 \pm \sqrt{6}$

Data:

$mean = \bar{x} = \dfrac{x_1 + x_2 + \ldots + x_n}{n}$ (average); *mode* = most often (may be more than one)

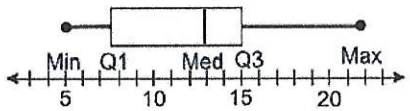
median = middle. Median best describes data if outliers exist.
range = difference between the maximum and minimum values.
quartiles divide data into 4 = parts.

Outliers: (values that are far away from the rest of the data)
Interquartile Range (IQR) = Q3-Q1.
Outliers are found above Q3+1.5(IQR) or below Q1-1.5(IQR)

Residual: y-distance between plotted point and line of best fit (regression)

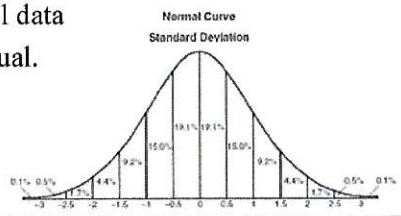
Regression Equation: calculator's line of best fit for a scatter plot
Correlation Coefficient: (tells how well a regression equation fits the data) $-1 \leq r \leq 1$
The closer to 1 or -1, the stronger the fit.

Box Plot: Shows data distribution.



Standard Deviation:
Notation: σ_x = population standard deviation
Standard deviation is a measure of variability; measuring spread of data and relationship of the mean to the data.
If σ_x is small, data is close to mean.
If σ_x is large, there is wide variance in data.
If σ_x is zero, all data values are equal.

Normal Curve:



Two-Way Tables:

Joint frequency

	CCSS Appendix A	NOT Appendix A	TOTALS
PARCC	55	1	56
NOT PARCC	5	1	6
TOTALS	60	2	62

Marginal frequency

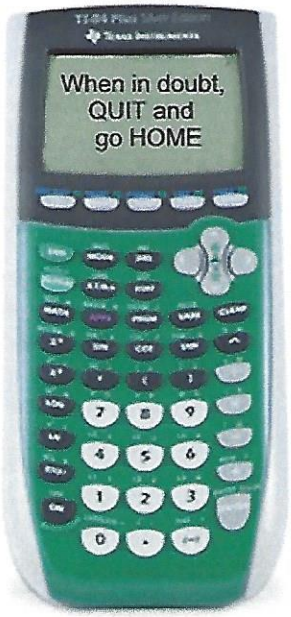
Conditional relative frequency — Relative Frequency (by row)

	CCSS Appendix A	NOT Appendix A	TOTALS
PARCC	$55/56 \approx 0.98$	$1/56 \approx 0.02$	$56/56 = 1.00$
NOT PARCC	$5/6 \approx 0.83$	$1/6 \approx 0.17$	$6/6 = 1.00$
TOTALS	$60/62 \approx 0.97$	$2/62 \approx 0.03$	$62/62 = 1.00$

Save This Sheet !

TI-83+/84+ Quick Reference Sheet

Algebra 1 Level



Calculator ID #:
Choose 2nd MEM,
#1 About
ID****-****-****

To Graph Lines (functions):

1. Enter equation in Y=.
2. Use ZOOM #6 (will give standard 10 x 10 window).
3. Use GRAPH to display graph.
4. Use WINDOW (to create your own screen settings).
5. Use TRACE to move spider on graph – arrow up/down between graphs

To Find Intersection Pts:

1. Graph both equations.
2. Use CALC menu (2nd TRACE)
   Choose #5 Intersect
3. Simply press <ENTER> 3 times to reveal the answer.

If you are looking for more than one intersection point, you must repeat this process.

To Plot Histograms and Box-Whisker Plots:

1. Place data in Lists: STAT → EDIT
2. Set up plot information: STAT PLOT #1 <ENTER>
   Highlight ON, choose symbol for histogram, XList: L_1
   OR choose symbol for box-whisker, Freq: 1
3. Graph: ZOOM #9 - TRACE to see values on graph
4. Xscl under WINDOW controls width of bars on histogram. An integer value is easiest to read.

To Get Statistical Information:

1. Place data in Lists: STAT → EDIT
2. Engage 1-Variable Statistics: STAT → CALC #1 1-VAR STATS
3. On Home Screen indicate list containing the data: 1-VAR STATS L_1

$\bar{X}$ = mean
Sx = the sample standard deviation
σ_x = the population standard deviation
n = the sample size (# of pieces of data)

Q_1 = data at the first quartile
med = data at the median (second quartile)
Q_3 = data at the third quartile

To Get Scatter Plots and Regressions (Linear, Quadratic, Exponential, Power, etc):

1. Place data in Lists: STAT → EDIT
2. Graph scatter plot: STAT PLOT #1 <ENTER> Choose ON.
   Choose the symbol for scatter plot, choose L_1 , L_2, choose mark
3. To graph, choose: ZOOM #9
4. To get regression equation: STAT → CALC #4 Lin Reg($ax+b$)
   (or whichever regression is needed)
5. On Home Screen: LinReg($ax+b$) L_1 , L_2 , Y_1
6. to see graph - GRAPH

To get Y_1 on the calculator screen:
VARS → Y-VARS
FUNCTION
Y_1

Been Playing Games?
Run DEFAULTS to reset calculator. 2nd MEM, #7 Reset, #2 Defaults, 2. Reset