Algebra Study Sheet

Arithmetic Properties

Associative $a\left(bc\right)=\left(ab\right)c$

Commutative $a+b=b+a and ab=ba$

Distributive $a\left(b+c\right)=ab+ac$

Common Arithmetic Operations

 $a\left(\frac{b}{c}\right)=\frac{ab}{c}$

 $ab+a=a(b+c)$

Quadratic Equation

For the equation: $ax^{2}+bx+c$

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

Common Factoring Examples

$$x^{2}-a^{2}=(x+a)(x-a)$$

$$Sum of Cubes: x^{3}+a^{3}=(x+a)(x^{2}-ax+a^{2})$$

$$Difference of Cubes: x^{3}-a^{3}=(x-a)(x^{2}+ax+a^{2})$$

Linear Equations

$$Slope Formula: \frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$$

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

 *M=slope b= y-intercept*

$$Standard Form:ax+by=c$$

$$slope=\frac{-a}{b} y-intercept= \frac{c}{b}$$

$$PointSlope Form:y-y\_{1}=m(x-x\_{2})$$

Exponent Properties

$$a^{n}a^{m}=a^{n+m}$$

$$(a^{n})^{m}=a^{nm}$$

$$a^{-1}=\frac{1}{a^{n}}$$

$$\frac{1}{a^{-n}}=a^{n}$$

$$(\frac{a}{b})^{n}=\frac{a^{n}}{b^{n}}$$

$$(\frac{a}{b})^{-n}=(\frac{b}{a})^{n}=\frac{b^{n}}{a^{n}}$$

$$\frac{a^{n}}{a^{m}}=a^{n-m}$$

$$a^{0}=1$$

Statistics

*Mean Absolute Deviation =*  ****

 

Sigma/Summation Notation $\sum\_{i=1}^{n}a\_{1 i is the lower limit and n is the upper limit.}$

Mean = $μ$

Variance=$σ^{2}$

Calculator

Solving systems of linear equations:

Graph lines in **Y=, graph,** (make sure you can see where your lines cross adjust the **window** as necessary) **2nd Trace, 5:intersect, ENTER,ENTER,ENTER**

Getting an equation from two points:

Enter coordinates into **STAT , 1:edit,** (x values go in L1 and y values go in L2), **STAT, CALC, 4:LinReg(ax+b)** a is your slope and b is your y-intercept

To Find the Mean of a set of DATA:

Enter the data into **STAT, L1, QUIT** to main screen. **2nd Stat, MATH, 3:Mean,** type L1 in the parenthesis,