**8th Grade Formula Sheet**

**Ch. 2**

Mean: sum of numbers/n

Absolute value: distance away from zero - l -3 l = 3

**Ch. 4**

Area of Rectangle: lw or bh

Area of Triangle: ½ b h

**Ch. 5**

Perimeter: add up all the lengths of a figure.

Perimeter of Rectangle: 2L + 2W or a + b + c + d

Perimeter of Triangle: P = a + b + c

Area of Rectangle: lw or bh

Area of Triangle: ½ b h

**Ch. 6**

Constant of proportionality = ky, where k is constant

**Ch. 7**

Percent Proportion:  a = part of base, b = base (whole), p = percent

Percent Equation: a = p% x b a,b,p are same as above.

Percent to fraction:  = p% p is the percent; Ex: 43% p would be 43.

Percent of change: 

Probability:

Simple interest: I = p x r x t p = principal ($), r = rate (%), t = time (yrs)

Simple annual interest: I = p + prt p, r, t same as above

Compound interest: P(1 + r)t p, r, t same as above

**Ch. 8**

 Constant of Porportionality: y = kx k is the constant rate.

Slope: **HINT: With slope always up/down then left/right!**

Slope-intercept Form: y = mx + b m = slope, b = y-intercept (where graph crosses y axis)

Point-Slope Method: y – y1 = m(x – x1) y1 = is y coordinate, x1 is x coordinate

Parallel slopes: have same slope

Perpendicular slopes: have opposite; reciprocal slope Ex: 

**Ch. 9**

Power: 35  3 is base, 5 is exponent

***Rules of Exponents:***

1. Product of Powers: multiplying powers same base; add exponents. Ex: 
2. Quotient of Powers: dividing powers same base; subtract exponents. Ex: 
3. Negative Exponents: exponent is integer; to make positive put base with negative exponent in denominator. Ex: .
4. Zero Exponents: anything raised to zero is 1. Ex: 
5. Power of a Power Property: To find multiply exponents. Ex: (am)n = a m x n

Scientific Notation: C x 10n C is a number between 0 and 10, n is an integer

***Types of Functions:***

* Linear: y = mx + b graph forms straight line
* Quadratic: y = ax2 + bx + c graph forms U shape (parabola)
* Cubic: ax3 + bx2 + cx + d graph forms curvy S
* Exponential: y = ax + c graph form increasing/decreasing curve

**Ch. 10**

Angles of a triangle add up to 180. a + b + c = 180.

Pythagorean Theorem: a2 + b2 = c2 a and b are the right angle; c is the diagnol.

Distance Formula: 

Midpt. Formula:  slope: $\frac{y-y}{x-x}$

***Special Right Triangle Formulas:***

* 45-45-90 Triangle:
	+ Hypotenuse: 
	+ Leg = leg
* 30-60-90
	+ Hypotenuse: 2a a is the short leg
	+ Long leg: 

**Ch. 11**

Complementary angles: angle 1 + angle 2 = 90o

Supplementary angles: angle 1 + angle 2 = 180o

Angles of a Quadrilateral: all angles add up to 360. Formula: a + b + c + d = 360

interior angles of polygon: 180(n – 2)

Sum of exterior angles: 360

Area of a Parallelogram: bh

Area of a Triangle: ½ bh or $\frac{bh}{2}$

Area of a Trapezoid: ½ h(b + b) or $\frac{h(b+b)}{2}$

Circumference of a Circle: or 

Area of a Circle: $A=πr^{2}$

Area of a Square/rectangle (any parallelogram): bh or s2

**Ch. 12**

Volume of a Prism: lwh Surface area of Triangular Prism: $2(\frac{bh}{2}$) + Ph

Volume of a Triangular Prism:  Surface Area of Prism: 2lh + 2hw + 2lw

Volume of a Cylinder: r2h Surface Area of Cylinder: 

Volume of a square/rectangular Pyramid:  lateral surface: 

Volume of a triangular pyramid: lateral area: 

Volume of a Sphere: Surface Area of Triangle Pyramid: 

Volume of a Cone: Surface square pyramid: 

 Surface Area of Cone: 

**Ch. 13**

Mean: 

Range: high value – low value

Interquartile range: upper quartile – lower quartile

Prediction: p% x population p% is fraction, population predicting for.

Permutation: n is total number, r is number choosen

Combination: nPr is number of permutations; r same above

Outliers: 1.5 x interquartile range.

Probability:

Odds in favor: 

Odds against: 

**Ch. 14**

F.O.I.L = multiply two binomials (3x + 2)(3x – 1)

 F = first number of each binomial

 O = outside numbers of binomials

 I = inside numbers of binomials

 L = last numbers of each binomial

**Other Formulas**

***Trigonometric Formulas:***

* Sine: 
* Cosine:
* Tangent:

**Other Notes**