**Formula Sheet for Honors Algebra**

**Ch. 1**

Distance: d = rt

Rate: r = d/t

Time: t = d/r

Perimeter: Add up the sides; combine like terms.

Simple Interest: I = prt p = principal ($) r = rate (%) t = time (yr)

Area square: s2 s = side length

Volume cube: s3

**Ch. 2**

Velocity: speed and direction

Speed: absolute value of velocity.

l x l = x absolute (distance from zero)

Probability: $\frac{favorable}{total outcomes}$

Odds: $\frac{favorable}{unfavorable}$

Odds from Probability: $\frac{probability event occurs}{1-probability event occurs}$

**Ch. 3**

Percent equation: a = p% x b a = part, p = percent, b = base (total)

**Ch. 4**

Slope = $\frac{y-y}{x-x}$ Slope is rise over run

Constant of variation: y = kx, k = constant of variation.

Slope intercept form: y = mx + b; m = slope and b = y-intercept

**Ch. 5**

Point-slope formula: y – y1 = m(x – x1)

**Ch. 6**

Mean: $\frac{sum of numbers}{Total numbers}$

**Ch. 7**

No Formulas

**Ch. 8**

Product of powers: multiply same base, add exponents. a2 x a3 = a5

Power of a power: multiply exponents (a2)5 = a10

Power of a product: put power on each term and multiply (2 x 6)3 = 23 x 63

Negative exponents: to make positive put negative exponent in denominator. 3-2 = 1/32

Any base raised to 0 is 1. 30 = 1

Quotient of powers: dividing same base; subtract exponents $\frac{4^{7}}{4^{3}}$ = 44

Power of a quotient: ($\frac{3}{4}$)2 = $\frac{3^{2}}{4^{2}}$

Scientific notation: c x 10n; c has to be 1≤ c < 10; n is an integer.

Growth factor: (1+r) (1+r) > 1 = growth

Exponential growth: c(1+r)t c = initial amount, r = rate, t = time

Decay factor: (1-r) (1-r) < 1 = decay

Exponential decay: C(1-r)t

**Ch. 9**

Quadratic equation: y = ax2 + bx + c; a is called leading coefficient

$Simplify product: \sqrt{32}$ = $\sqrt{16}$ x $\sqrt{2}$

Simplify quotient: $\sqrt{\frac{a}{b}}$ = $\frac{\sqrt{a}}{\sqrt{b}}$

Vertex: - $\frac{b}{2a}$

Quadratic formula: $\frac{-b\pm \sqrt{b^{2}-4ac}}{2a}$

Thrown object: h = -16t2 + vt + s h = height (thing dropped goes splat), s = initial height (starting height), t = time(sec), v = initial velocity

Dropped object: h = -16t2 + s

Discriminant: $\sqrt{b^{2}-4ac}$

**Ch. 10**

See factor sheet (will get during class)

**Ch. 11**

a2 + b2 = c2 a and b are legs; c is the hypotenuse