

Algebra 1 Formulas

Slope: (x_1, y_1) (x_2, y_2)

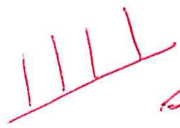

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Linear Equations:

Slope-intercept form: $y = mx + b$

point-slope form: $y - y_1 = m(x - x_1)$

standard form: $Ax + By = C$

$<$ dashed \leq solid $y >$ $y \geq$  shade above
 $>$ \geq $y <$ $y \leq$  shade below

Exponential Equations:

$y = ab^x$, $b = 1 + r$ growth/increase
 $b = 1 - r$ decay/decrease

$b > 1$ growth factor
 $0 < b < 1$ decay factor

Interest: $A = P(1 + r)^t$

compounded n times

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

quarterly: $n = 4$

monthly: $n = 12$

Quadratic Equations:

$$y = ax^2 + bx + c$$

Solve $ax^2 + bx + c = 0$

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

For graphs: Use x/y to find points / take points given and plug in.

Transformations:

Absolute value

$$y = a|x-h| + k$$

vertex: $(-h, k)$

$a =$ m of right side

Quadratic

$$y = a(x-h)^2 + k$$

$h \rightarrow$ right $(x-h)$
left $(x+h)$

$k \rightarrow$ up $k > 0$
down $k < 0$

$a \rightarrow$ negative means flip on x-axis

$|a| > 1$ stretch
 $0 < |a| < 1$ shrink

Exponents

$$x^m \cdot x^n = x^{m+n}$$

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

$$\left(\frac{x^m}{x^n}\right)^p = \frac{(x^m)^p}{(x^n)^p}$$

$$x^{-m} = \frac{1}{x^m} \quad \frac{1}{x^{-m}} = x^m$$

$$x^0 = 1$$

$$(x^m)^n = x^{m \cdot n}$$

$$(x_1 x_2)^n = x_1^n x_2^n$$

Sequences

Arithmetic: add d

$$a_n = a_1 + d(n-1) \quad \text{Explicit}$$

$$a_n = a_{n-1} + d$$

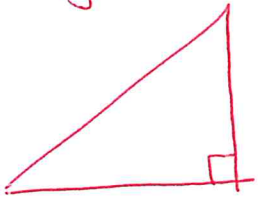
Recursive

Geometric: mult. by r

$$a_n = a_1 r^{n-1}$$

$$a_n = a_{n-1} \cdot r$$

Right Triangle



$$a^2 + b^2 = c^2$$

$$A = \frac{1}{2}bh$$

180° in all 3 angles

Rectangle:



$$P = 2l + 2w \\ = l + l + w + w$$

$$A = l \cdot w$$

Cylinder:

$$A = \pi r^2 h$$

Circle

$$C = 2\pi r$$

$$A = \pi r^2$$

Good luck!

Try hard !! 😊