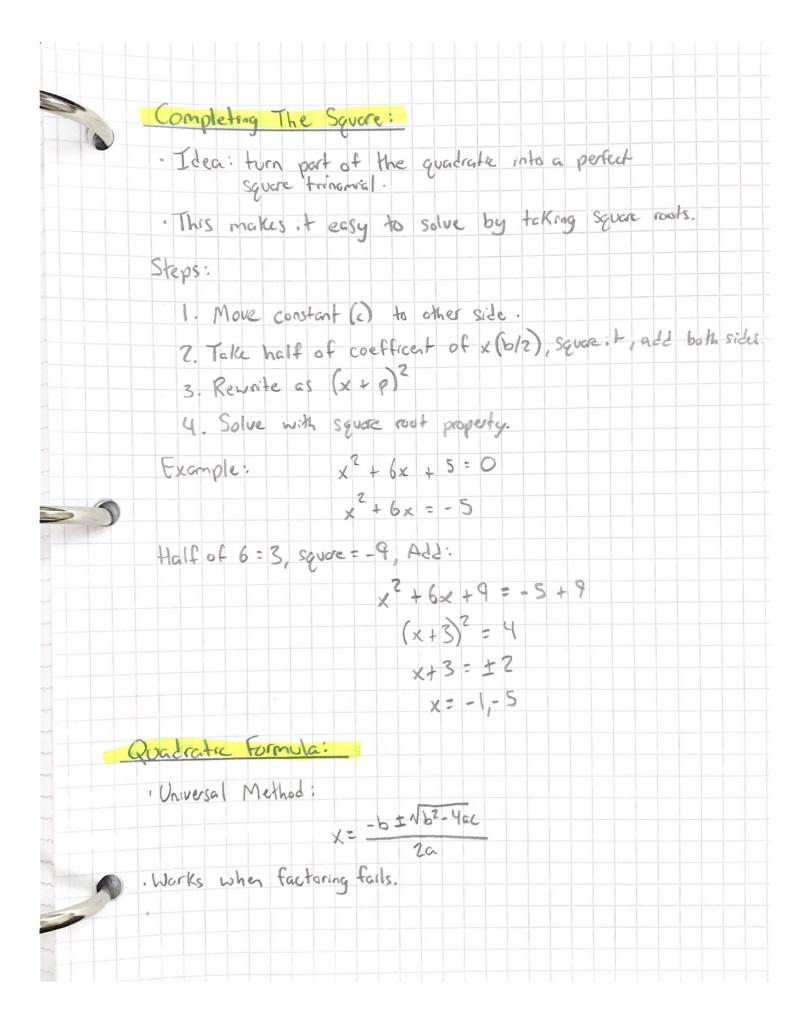


	Solutions (Roots): Values of x that make y = 0. These ore the x-intercepts of the parabola.
	- A quadrate can have 1,2, or 0 teal solutions.
	Example: y = x2 - 4x + 3
	· Opens upword (a= 170) · Crosses x-axis at x = 1,3 · Vertex: Midway between bots = x = 2, y=-1
	Solving By Factoring:
	- Factoring Works when the quadradic is "rice" (:nteger solution).
	· Rule = If (x+p)(x+q) = 0, then either x = -p or x = -q
	-Think - "What multiplies to c, and adds to b?"
	Steps:
	1. Write in standard form ax2 + box +c =0 2. If a = 1: find two numbers that multiply to c and add to b.
	3. Factor into binomials.
	4. Solve each factor = 0
	Example: x2 + 5x + 6 = 0
	Two numbers that multiply to 6 and add to 5: 2,3.
	$(x+2)(x+3)=0 \to x=-2,-3$



Discriminanti b2- 4ac · 70:2 real solutions (parabola crosses x-axis twice). . = 0: 1 real solution (porabola touches x-axis one vertex on < 0: No real solutions (parabola doesn't touch x-axis). 2x2 +3x -2=0 Example: x= -3 = 1/32-4(2)(-2) = -3±N9+16 = -3±5 X= +1-2 Graphing Quadratios: · Standard form = ax2+ bx + c · Vertex Formula:  $x = -\frac{b}{2a}$ ,  $y = f\left(-\frac{b}{2a}\right)$ · Axis of symmetry: Vertical line through vertex · Roots: Where parabola interects x-axis (solve quadratic). . Y- interupt = constant C  $y = x^2 - 4x + 3$ Example:  $x = -\frac{4}{70} = 2$ 4 = 22 - 4(2) + 3 = -1 Vetex = (7,-1)

Application of Quadrates:  Quadrates model real world scenaries with curves.  Common types:  - Projectile motion: h(t) = -16t² + Not + hp  - Area Problems: Max area with given parameter.  - Optimization: Maximizing /minimizing partit /cast.		
Common types:  - Projectile motion: h(t) = -16t? + Not + ho  - Area Problems: Max area with given paremeter.  - Optimization: Maximizing / minimizing profit / cost.		
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- Area Problems: Max area with given paremeter Optimization: Maximizing / minimizing profit /east.		- Projectile motion: h(+) = -16+2 + Not + ho
- Optimization: Maximizing / maximizing partit lasst.		- Area Problems; Max area with given parameter.
		- Optimization: Maximizing / manimizing prefit least.
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