

7.) (various pts each, 25 pts total) Solve each system using elimination.

a) (10 pts) Solve.

$$\begin{aligned} 2x - 3y + z &= -3 \\ x - 5y + 7z &= -11 \\ -10x + 4y - 6z &= 28 \end{aligned}$$

① $2x - 3y + z = -3$

→ ② $x - 5y + 7z = -11$

③ $-10x + 4y - 6z = 28$

① $2x - 3y + z = -3$
 ② $x - 5y + 7z = -11$

② $x - 5y + 7z = -11$
 ③ $-10x + 4y - 6z = 28$

~~$2x - 3y + z = -3$~~
 ~~$+ -2x + 10y - 14z = 22$~~

~~$10x - 50y + 70z = -110$~~
 ~~$+ -10x + 4y - 6z = 28$~~
 $-46y + 64z = -82$

④ $7y - 13z = 19$

Simplify if able

⑤ $-23y + 32z = -41$

② $x - 5y + 7z = -11$
 $x - 5(-1) + 7(-2) = -11$
 $x + 5 - 14 = -11$

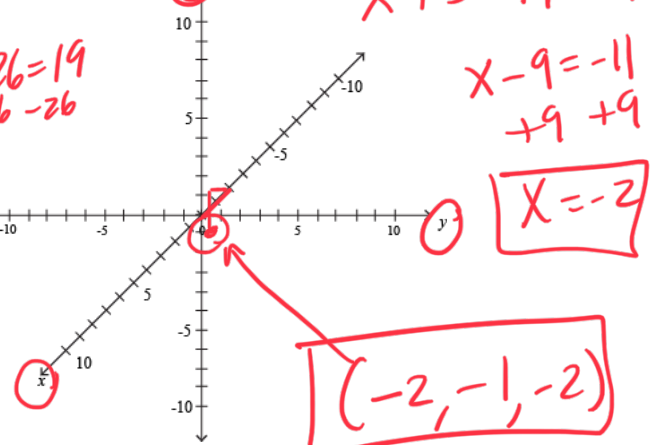
④ $7y - 13z = 19$
 ⑤ $-23y + 32z = -41$

④ $7y - 13(-2) = 19$

$7y + 26 = 19$
 $7y = -7$

$y = -1$

b) (2.5 pts) Graph the above solution.



$x - 9 = -11$
 $+9 +9$
 $x = -2$

$x = -2$

~~$161y - 299z = 437$~~
 ~~$+ -161y + 224z = -287$~~

$-75z = 150$
 $z = -2$

lowest pt → $z = -2$

Quadratic functions: $ax^2 + bx + c$

Linear Functions: $y = mx + b$
 (slope) (y-intercept)

$y = x^2$

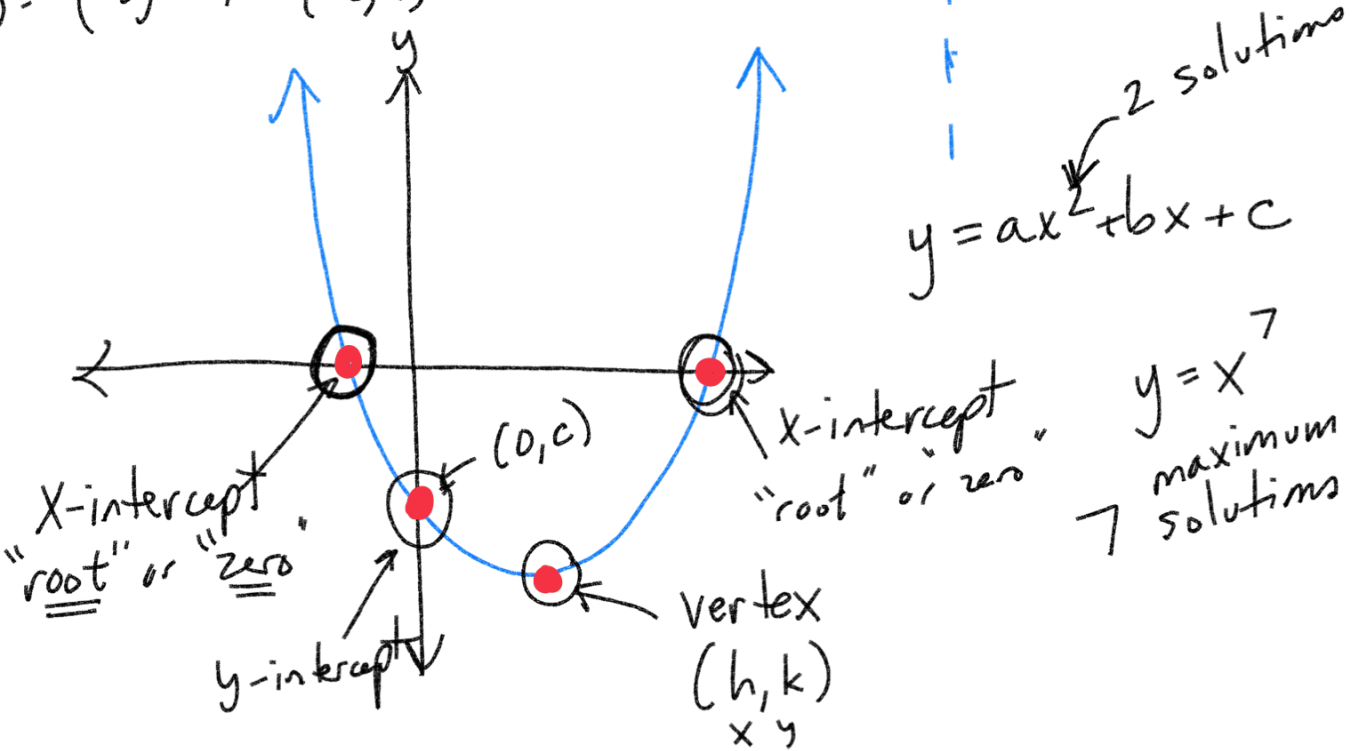
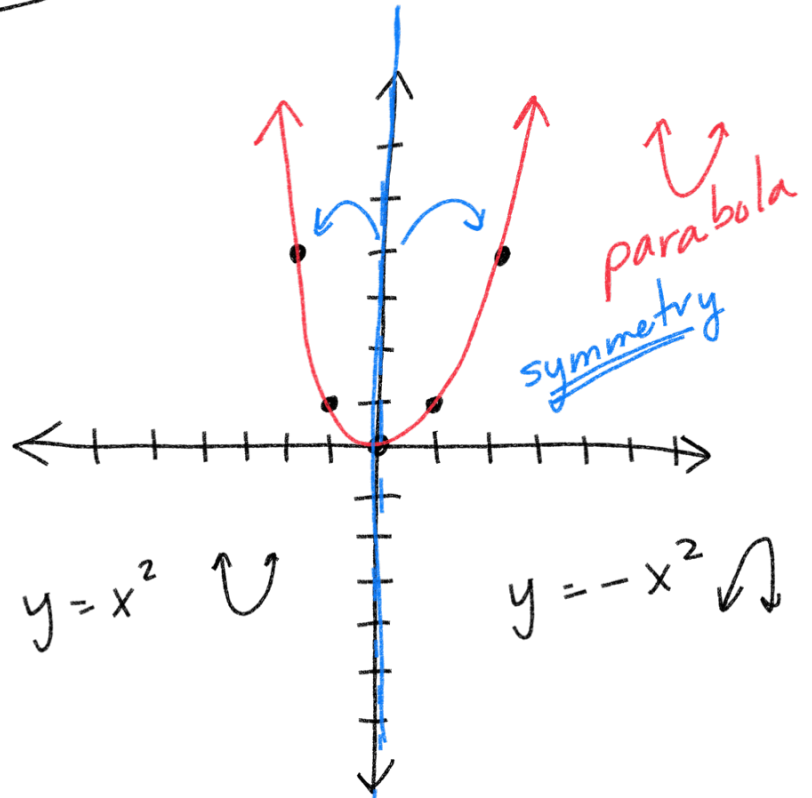
$f(0) = (0)^2 = 0$ $(0, 0)$
 $x=0$ $y=0$

$f(1) = (1)^2 = 1$ $(1, 1)$

$f(-1) = (-1)^2 = 1$ $(-1, 1)$

$f(2) = (2)^2 = 4$ $(2, 4)$

$f(-2) = (-2)^2 = 4$ $(-2, 4)$



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

$y = x^7$
 maximum solutions

Quadratic Functions

1.) Must have a square as the highest exponent.

$$y = x^2 + x + 3 \quad \text{yes! is a quadratic}$$

$$y = x^3 + x^2 - 8 \quad \text{Nope! not quadratic}$$

$$y = 3x - 7 \quad \text{Naw! not quadratic}$$

2.) All exponents on variables must be whole numbers.

$$y = x^2 + x^{1/3} \quad \text{not whole number not quadratic}$$

$$y = x^{-2} \quad \text{negatives are not whole numbers. not quadratic}$$

Which of the following equations is a quadratic?

1.) $y = (-5x-4)(-5x-4)$
 $25x^2 + 20x + 20x + 16$

FOIL
quadratic!

First ✓
Outside ✓
Inside ✓
Last ✓

$25x^2 + 40x + 16$

2.) $y = 3(x-1) + 3$

$3x - 3 + 3 = 3x$ not quadratic!

3.) $y = \cancel{x^2} - 11x + 24 - \cancel{x^2}$
 $-11x + 24$ not quadratic

$\blacksquare - \blacksquare = 0$

$x^2 - x^2 = 0$

4.) $y = 2(x+2)^2 - 2x^2$

$(3)^2 = 3 \cdot 3$

FOIL $2(x+2)(x+2) - 2x^2$

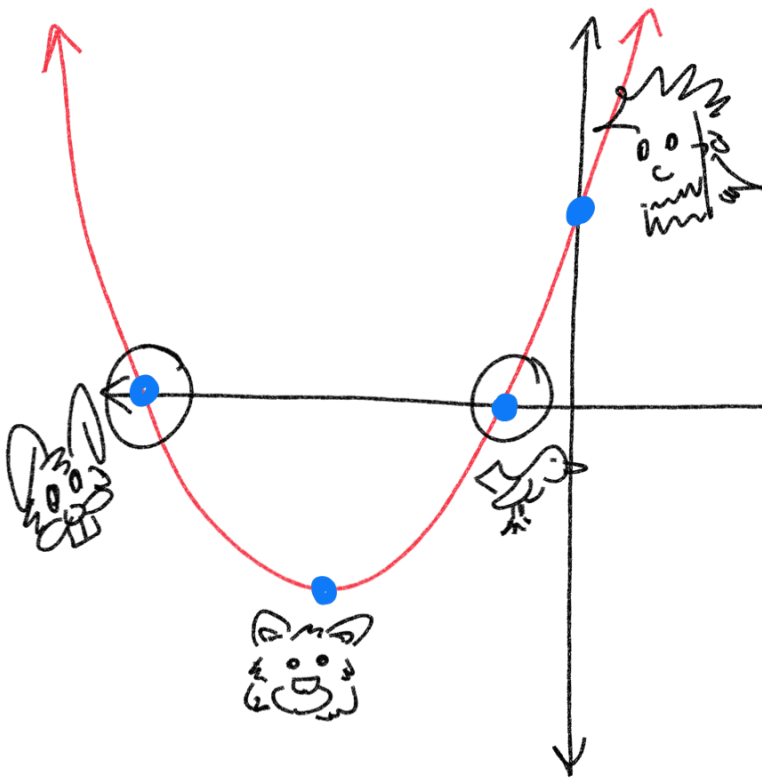
$(\text{Ⓜ} + \text{Ⓜ})^2 = (\text{Ⓜ} + \text{Ⓜ})(\text{Ⓜ} + \text{Ⓜ})$

$2(x^2 + 2x + 2x + 4) - 2x^2$

$2(x^2 + 4x + 4) - 2x^2$

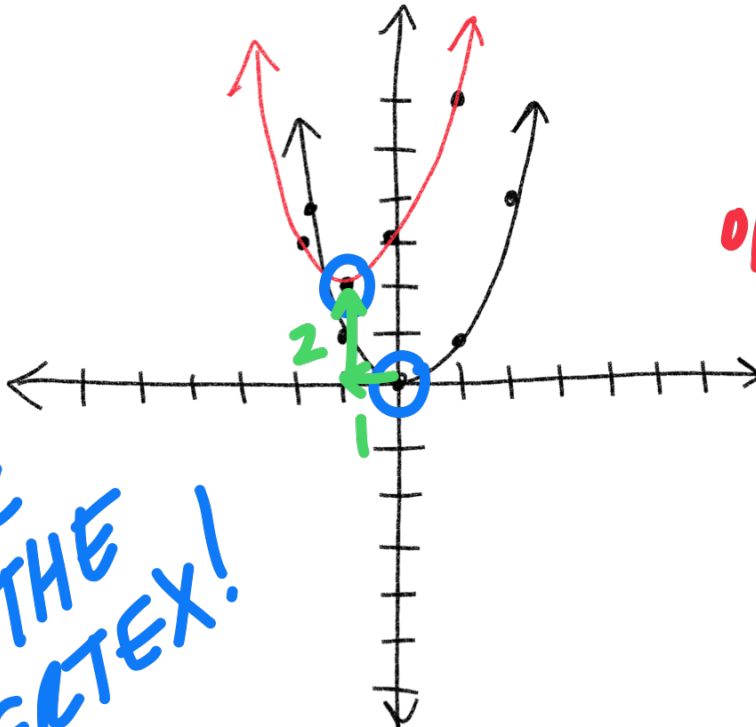
$\cancel{2x^2} + 8x + 8 - \cancel{2x^2}$

$8x + 8$ not quadratic



Bunny \rightarrow zero, root
 Bear \rightarrow vertex
 Duck \rightarrow zero, root
 Mullet Nate \rightarrow y-int

$$y = x^2$$



$$y = (x+1)^2 + 2$$

opposite left 1
 up 2

X	$(x+1)^2 + 2$	y
-2	$(-2+1)^2 + 2$ $(-1)^2 + 2$ $1 + 2$	3
-1	$(-1+1)^2 + 2$ $0 + 2$	2
0	$(0+1)^2 + 2$ $1^2 + 2 =$	3
1	$(1+1)^2 + 2$ $2^2 + 2$ $4 + 2$	6

LOOK AT THE VERTEX!

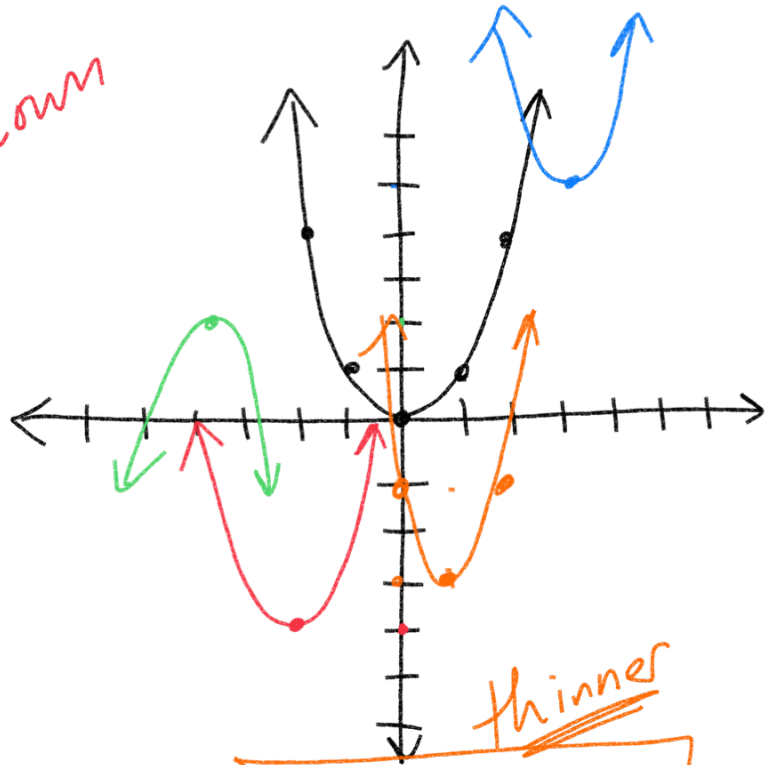
1.) $y = (x+2)^2 - 4$

2 left 4 down

2.) $y = (x-3)^2 + 5$

3.) $y = -(x+4)^2 + 2$

flip down 4 left (opposite) 2 up



4.) $y = 2(x-1)^2 - 3$

slope right 1 down 3

thinner