

a_n means " n^{th} term"

a_1 first

a_2 2nd

a_3 3rd

a_n if $n=3$, means 3rd

a_{n+1} if $n=3$, means 4th

Sequence: $a_1, a_2, a_3, a_4, \dots$

know 25th term:

want 26th term,

recursive: $a_{n+1} = a_n + d$

$a_{26} = a_{25} + d$

(recursive: $a_n = a_{n-1} + d$

find "zeros" means?

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

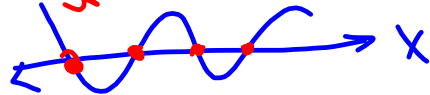
polynomial
 $P(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$

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

$P(x) = 0$

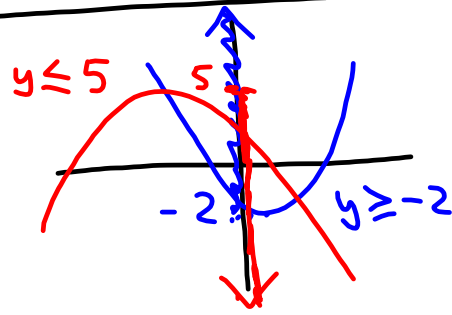
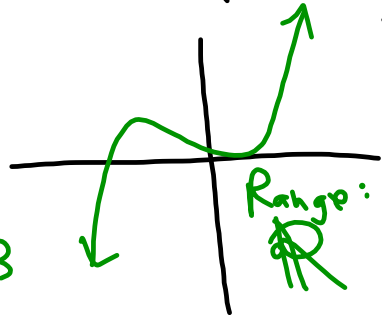
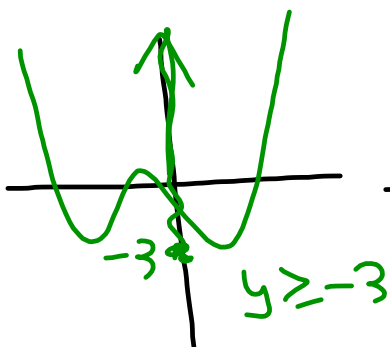
find x that makes these equations true

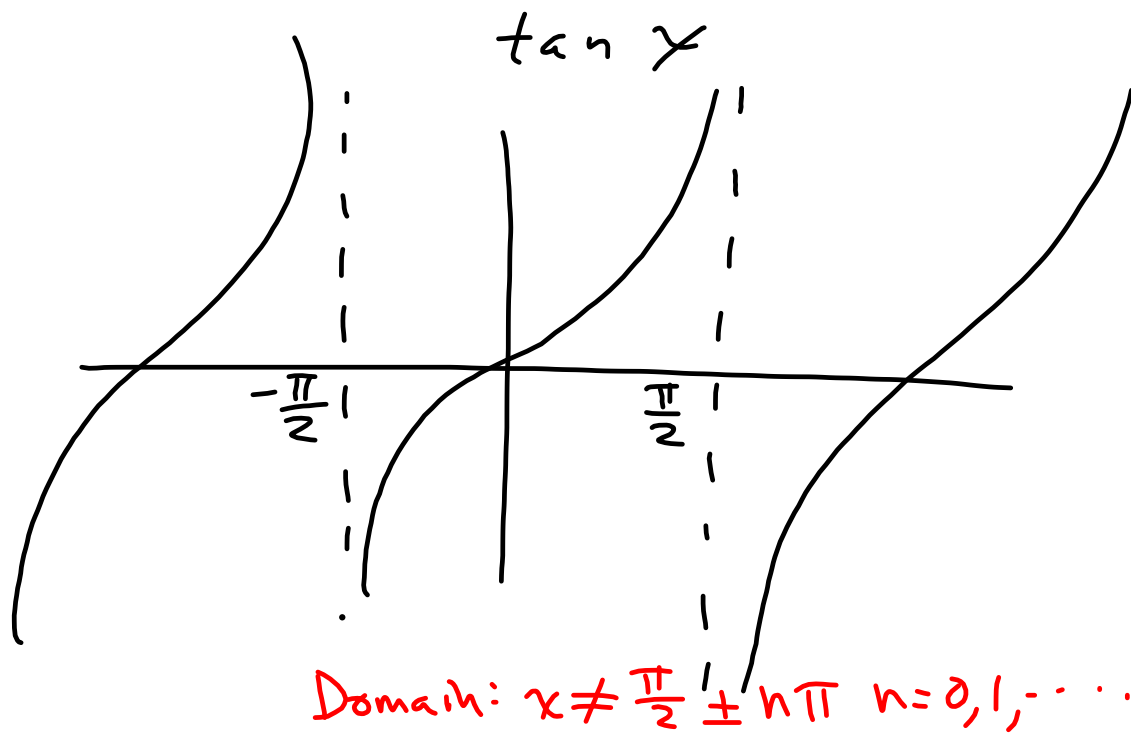
zeros of polynomial / factoring - set each factor = 0
 e.g. $x - 2$ $x = 2$ is a zero



domain: all real numbers
 b/c every x that you can think of can be used as input

range: ask: what y-values (outputs) can be produced?





Standard form of quadratic
same as
Standard form of polynomial!

Polynomial, degree = 1

* $P(x) = a_1x + a_0 \quad (mx + b)$

* degree = 2 $P(x) = a_2x^2 + a_1x + a_0 \quad (ax^2 + bxc)$

degree = 3 $P(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

$$P(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$$

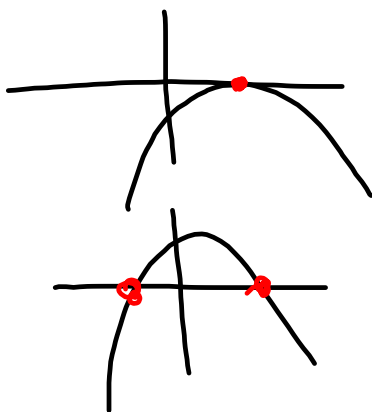
area of trapezoid:



$$A = \frac{b_1 + b_2}{2} \cdot h$$

discriminant

$$b^2 - 4ac$$



< 0 2 imag
 (0 real)
 $= 0$ 1 real
 (multiplicity 2)
 > 0 2 real