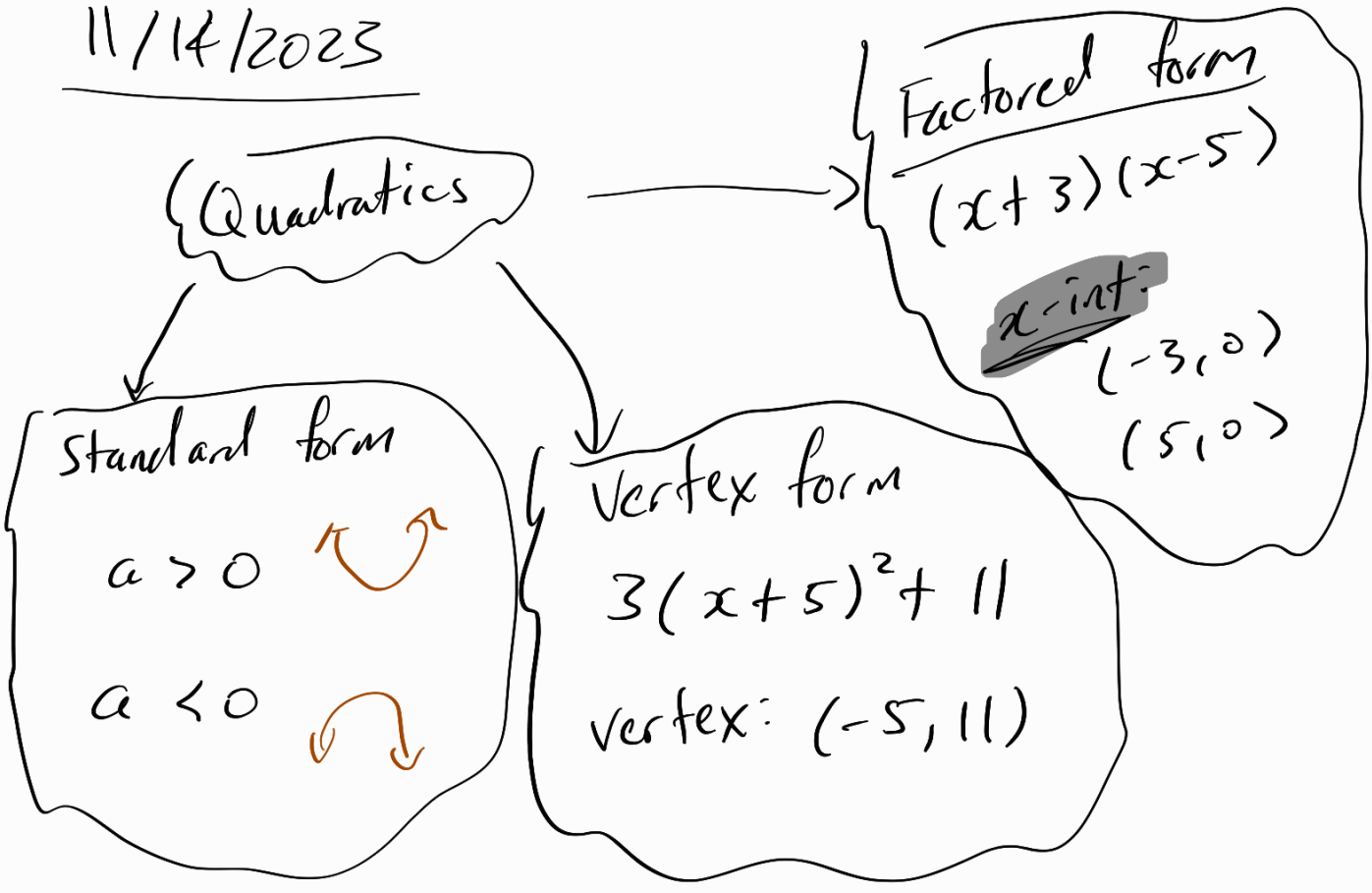
11/14/2023



Polynomials : $-10+7x-3x^4+2x^2$

deg = 4 , LC = -3

"standard form"

FACTORED FORM ← TODAY

$f(x)=(x-3)^3\cdot(x+5)\cdot(x-7)^2$

"factored form"

MULTIPLICATION

x-int : $x = 3$ $x = -5$ $x = 7$

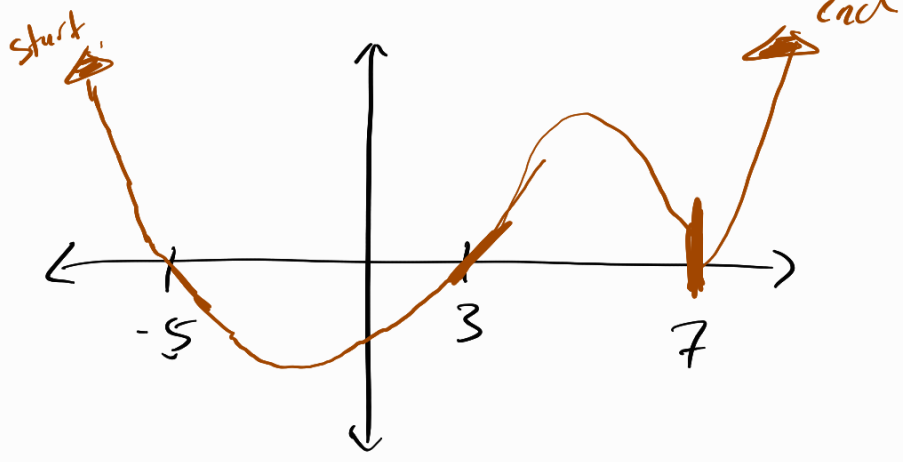
$m = 3$	$m = 1$	$m = 2$
odd	odd	even

"multiplicity" = # of repeats

$3+1+2$

even deg

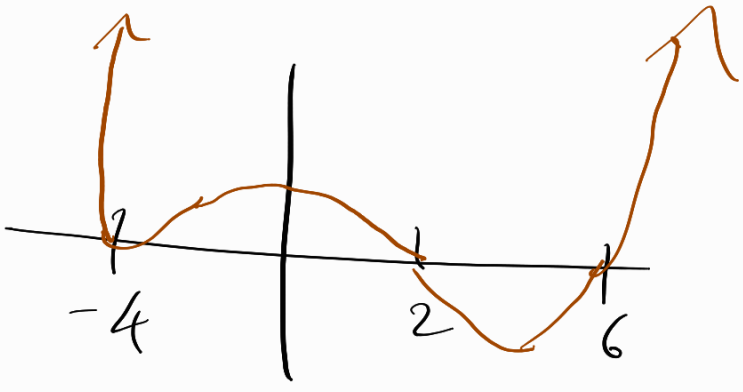
$f(x) = (x-3)^3 \cdot (x+5) \cdot (x-7)^2$



positive leading

$g(x) = (x-2)^1(x+4)^2(x-6)^3$

- x-int? $x = 2, -4, 6$
- multiplicity 1, 2, 3
- graph?



$f(x) = (x-3)^{2020}(x+5)^3(x-7)^{2020}$

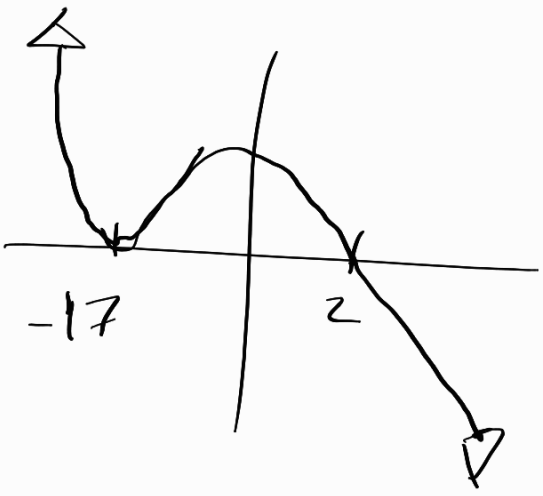
. $f(x) = -5(x+17)(x-2)$

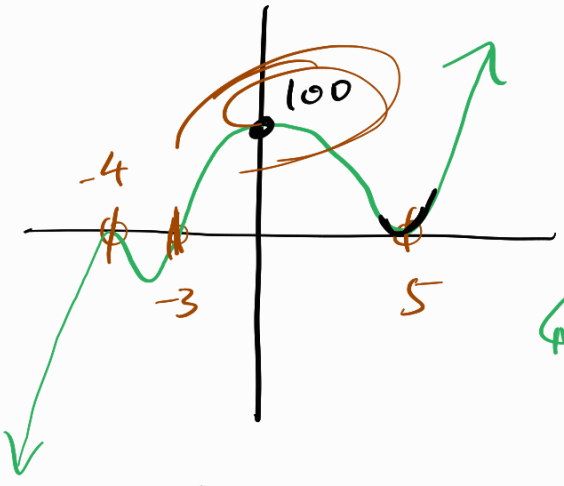
. odd deg w/ negative L.C.

x-int:

mult:

graph:





What is $f(x)$?

x-int:

multiplicity: $-4, -3, 5$

even odd even

2 1 2

$$f(x) = a(x+4)^2(x+3)^1(x-5)^2$$

$x = 0$

$$f(0) = 100 = a\,4^2 \cdot 3(-5)^2$$

$$a = \frac{100}{12}$$

$$f(x) = \frac{1}{12}(x+4)^2(x+3)(x-5)^2$$