3.2 Polynomial Functions Apr 25 sub.notebook

3.2 Polynomial Functions

Ex.) Describe the graph of $f(x) = x^2 - 13x + 40$.

- type of graph? quadratic → x^2 is the highest power
- y int = 40 (0,40) constant term is 40 (no variable)
- x int? (5,0) (8,0)
  - graphing
  - quadratic formula $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$
  - factor $(x-5)(x-8) = 0$ $x = 5$ $x = 8$
- turning points? one
  vertex (6.5, -225)
  min or max
- end behavior? II to I

II I III IV

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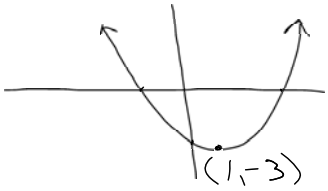
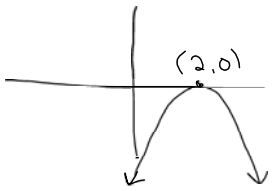
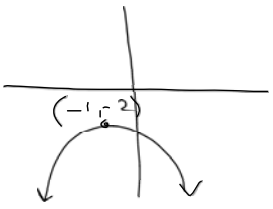
Degree 2 Graphs







# of x_{int}?	2	1	0
# of y_{int}	1	1	1
turning pts	1	1	1
Domain/Range	$x \in R, y \geq -3$,	$x \in R$ $y \leq 0$	$x \in R$ $y \leq -2$
End behavior	II to I	III to IV	III to II

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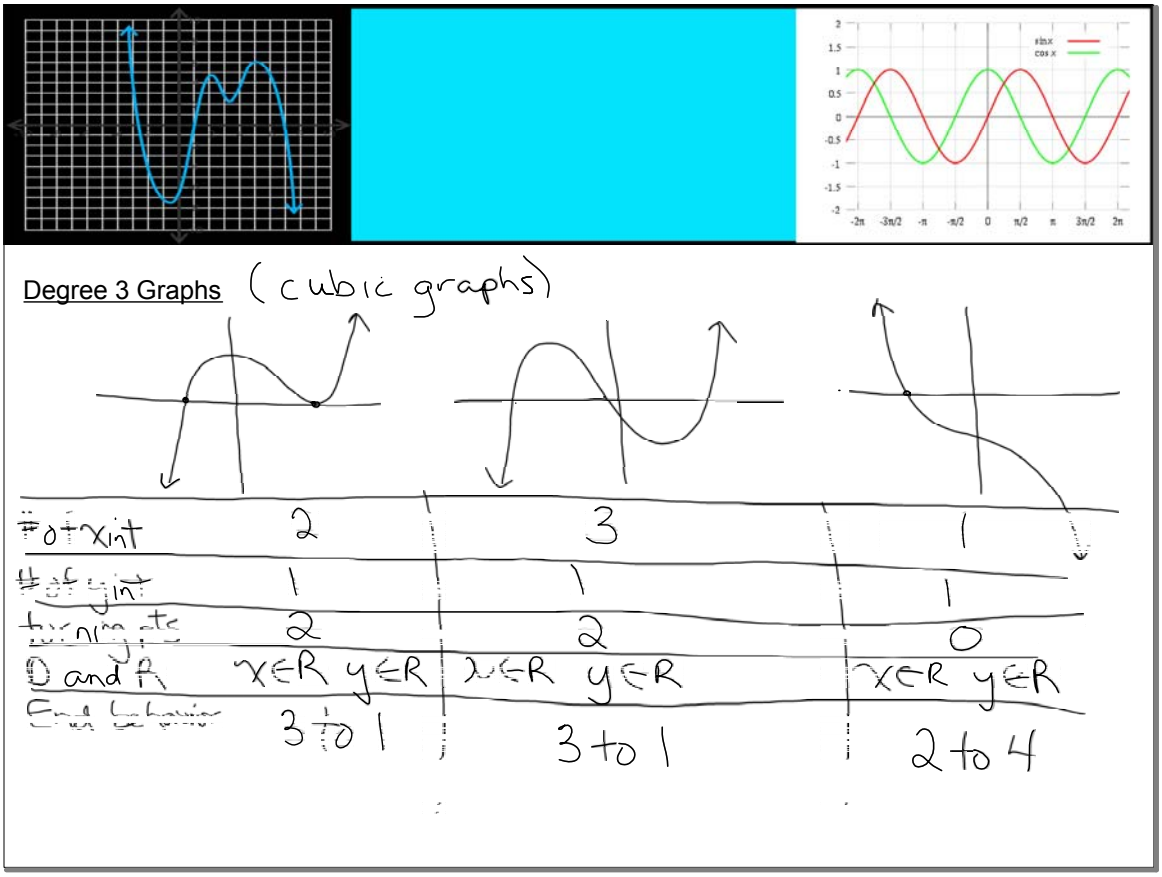

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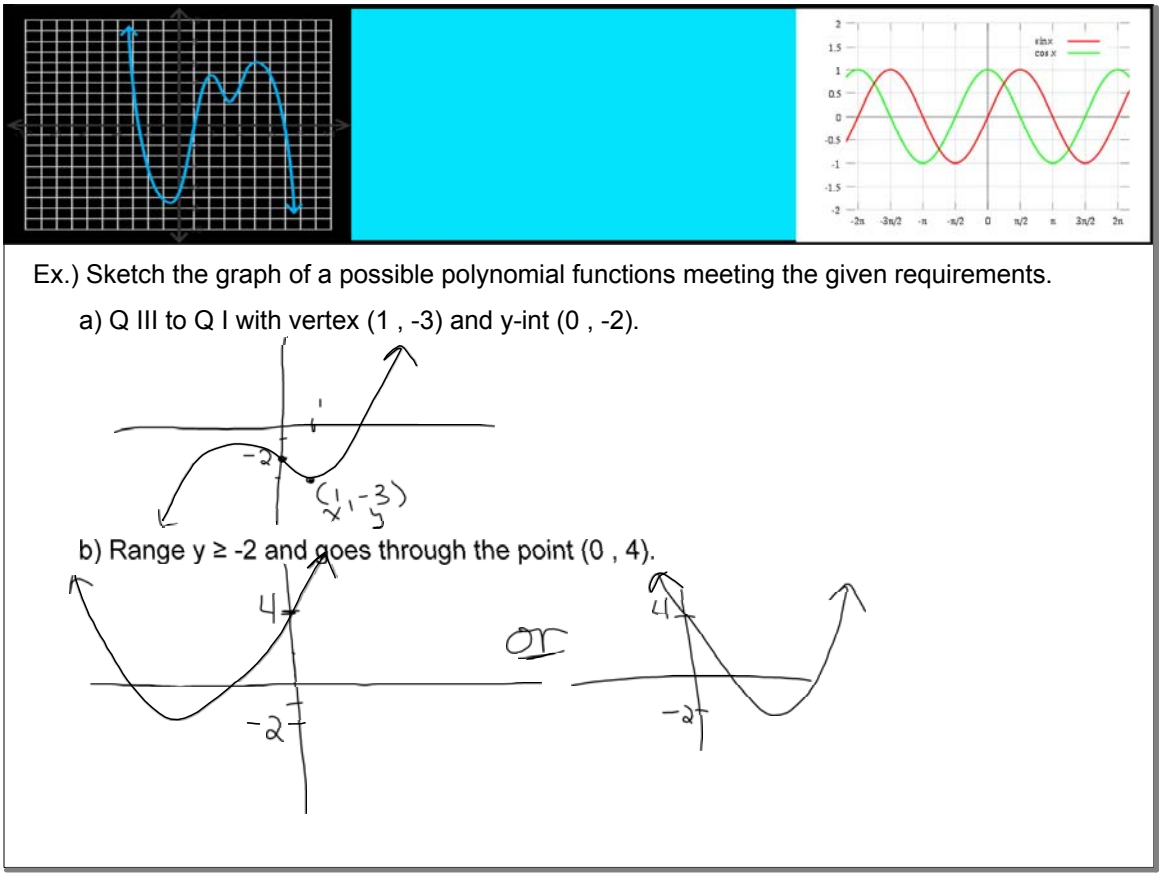

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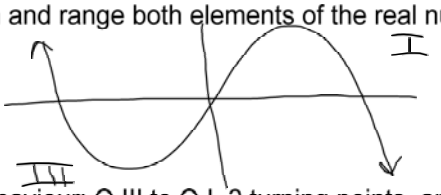
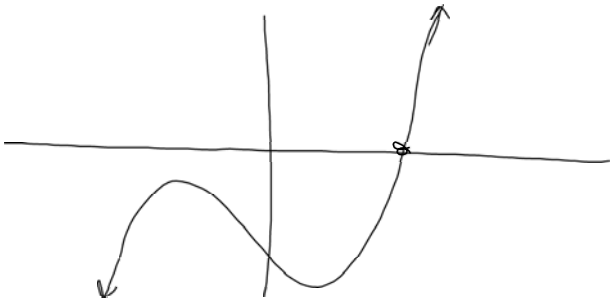
c) Domain and range both elements of the real numbers and turning points in Q III and Q I.



d) End behaviour; Q III to Q I, 2 turning points, and one x-intercept.



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Ex.) Write an equation of a possible polynomial function with:

a) Degree 2, turning point a maximum, constant term is -6.

$y = -x^2 - 6$

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

b) Degree 1, positive leading coefficient, constant term of 10.

$y = x + 10$

or

$y = 3x + 10$

Pg. 287 # 1, 3, 4, 5(no calc), 6-8, 10.

Apr 20-11:02 AM