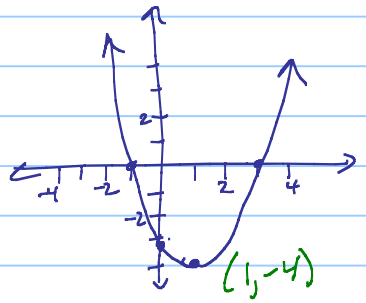
1.3 Graphing Polynomial Functions

Note Title 12/09/2012

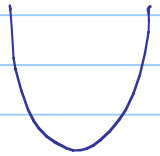
Sketch the graph of $y = x^2 - 2x - 3$



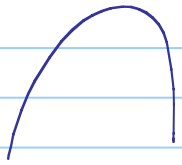
- Opens up
- Domain: $x \in \mathbb{R}$
  Range: $y \geq -4$
- Intercepts: x-int: $x = -1, 3$
  (AKA zeroes)
  y-int: $y = -3$
- Absolute min. at $x = 1$ of $y = -4$

Without graphing, state whether $y = -2x^2 - 3x + 5$ opens up or down and has a min or max.

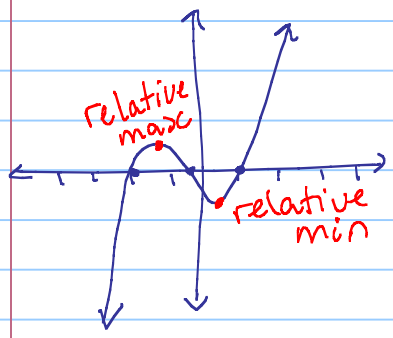
$+x^2$



$-x^2$



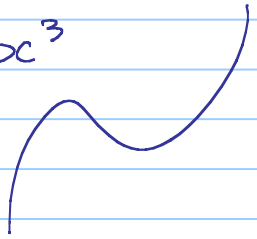
Sketch the graph of $y = 2x^3 + 3x^2 - 3x - 2$ (Cubic)



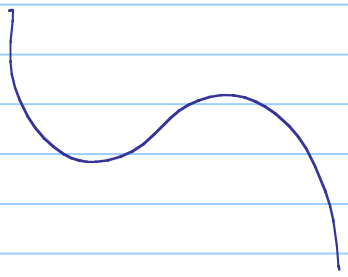
- End behaviour: as $x \to -\infty$, $f(x) \to -\infty$
  as $x \to +\infty$, $f(x) \to +\infty$

Domain: $x \in \mathbb{R}$
Range: $y \in \mathbb{R}$
Turn around points: x^3 has 2
Intercepts: x-int: $x = -2, -\frac{1}{2}, 1$

$+x^3$

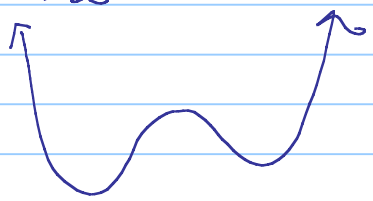


$-x^3$

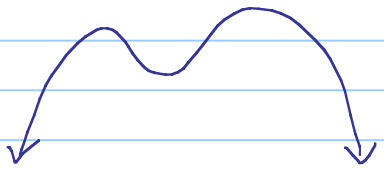


Quartic functions:

$+x^4$

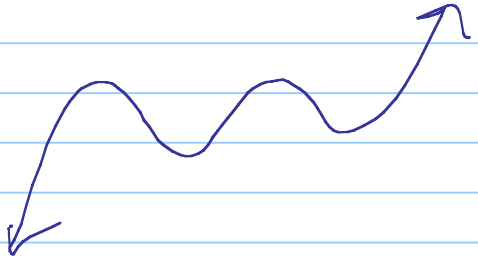


$-x^4$



Quintic functions:

$+x^5$



$-x^5$