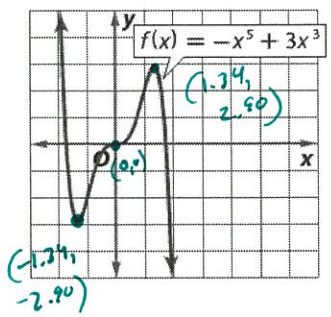
Name: Key

Date: _____ Period: _____

Pre-Calculus
Section 1.4 Practice

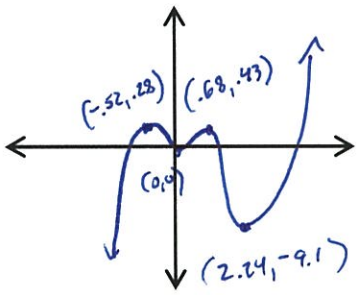
Given the function, determine the following information: Domain, Range, Extrema, Zeros, Y-intercept, Intervals of Increasing and Decreasing, End Behavior, and Continuity (if needed sketch the graph on the coordinate plane).

1.



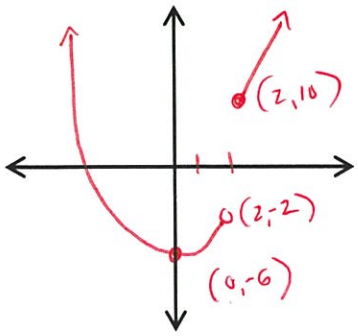
Domain:	Y-intercept:	Relative Maximum:	Increasing/Decreasing/ Constant:
$(-\infty, \infty)$	0	$(1.34, 2.90)$	I: $(-1.34, 0) \cup (0, 1.34)$
Range:	**Continuity:**	**Relative Minimum:**	D: $(-\infty, -1.34) \cup (1.34, \infty)$
$(-\infty, \infty)$	Everywhere	$(-1.34, -2.90)$	
Zeros:	**End Behavior:**	**Absolute Extrema:**	C: none
± 1.73, 0	$\lim_{x \to \infty} f(x) = -\infty$, $\lim_{x \to -\infty} f(x) = \infty$	none	

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



Domain:	Y-intercept:	Relative Maximum:	Increasing/Decreasing/ Constant:
$(-\infty, \infty)$	0	$(.68, .43)$, $(-.52, .28)$	I: $(-\infty, -.52) \cup (0, .68) \cup (2.24, \infty)$
Range:	**Continuity:**	**Relative Minimum:**	D: $(-.52, 0) \cup (.68, 2.24)$
$(-\infty, \infty)$	Everywhere	$(2.24, -9.1)$	
Zeros:	**End Behavior:**	**Absolute Extrema:**	C: none
$-.73, 0, 1, 2.73$	$\lim_{x \to \infty} f(x) = \infty$, $\lim_{x \to -\infty} f(x) = -\infty$	none	

3. $f(x) = \begin{cases} x^2 - 6 & \text{if } x < 2 \\ x^3 + 2 & \text{if } x \geq 2 \end{cases}$



Domain:	Y-intercept:	Relative Maximum:	Increasing/Decreasing/ Constant:
$(-\infty, \infty)$	-6	none	I: $(0, \infty)$
Range:	**Continuity:**	**Relative Minimum:**	D: $(-\infty, 0)$
$[-6, \infty)$	Jump	none	
Zeros:	**End Behavior:**	**Absolute Extrema:**	C: none
-2.4	$\lim_{x \to \infty} f(x) = \infty$, $\lim_{x \to -\infty} f(x) = \infty$	minimum $(0, -6)$	