

Name: Key

Date: _____

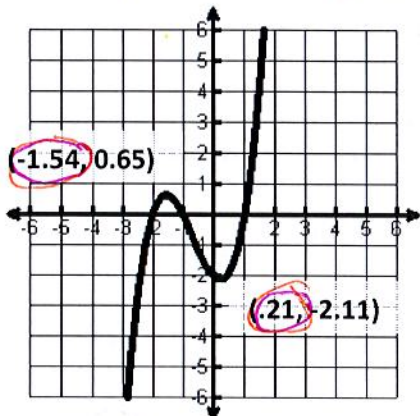
1. $f(x) = x^3 + 2x^2 - x - 2$

Rel. Max: $(-1.54, 0.65)$ Rel. Min: $(.21, -2.11)$

Abs. Max: NONE Abs. Min: NONE

Inc: $(-\infty, -1.54) \cup (.21, \infty)$ Dec: $(-1.54, .21)$

Domain: \mathbb{R} Range: $(-\infty, \infty)$



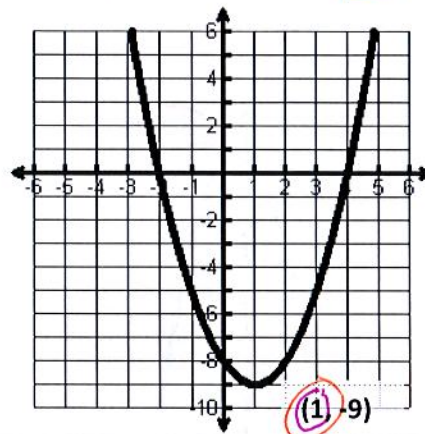
2. $f(x) = x^2 - 2x - 8$

Rel. Max: NONE Rel. Min: $(1, -9)$

Abs. Max: NONE Abs. Min: $(1, -9)$

Inc: $(1, \infty)$ Dec: $(-\infty, 1)$

Domain: \mathbb{R} Range: $[-9, \infty)$



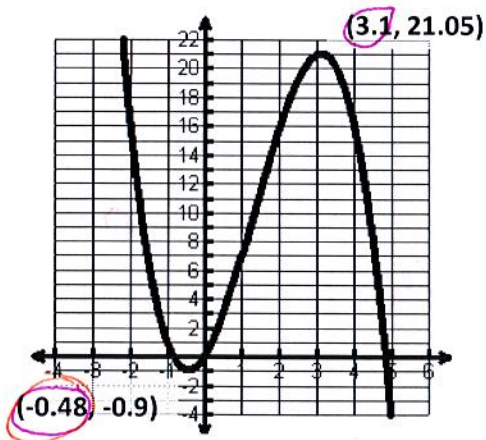
3. $f(x) = -x^3 + 4x^2 + 4x$

Rel. Max: $(3.1, 21.05)$ Rel. Min: $(-.48, -0.9)$

Abs. Max: NONE Abs. Min: NONE

Inc: $(-.48, 3.1)$ Dec: $(-\infty, -.48) \cup (3.1, \infty)$

Domain: \mathbb{R} Range: \mathbb{R}



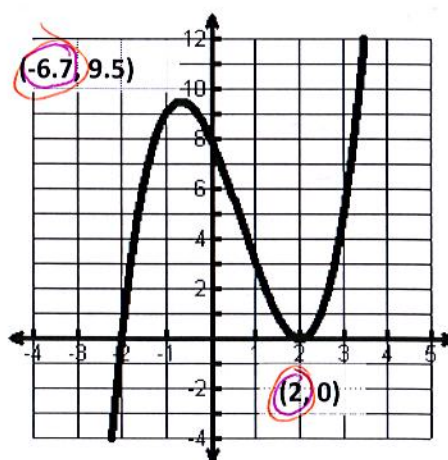
4. $f(x) = x^3 - 2x^2 - 4x + 8$

Rel. Max: $(-6.7, 9.5)$ Rel. Min: $(2, 0)$

Abs. Max: NONE Abs. Min: NONE

Inc: $(-\infty, -6.7) \cup (2, \infty)$ Dec: $(-6.7, 2)$

Domain: \mathbb{R} Range: All Reals



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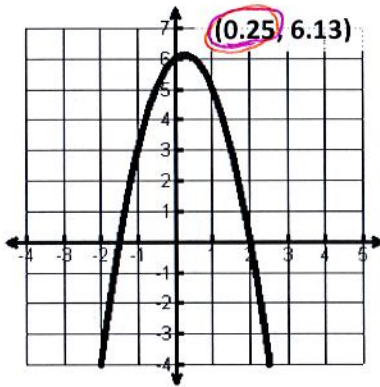
5. $f(x) = -2x^2 + x + 6$

Rel. Max: $(0.25, 6.13)$ Rel. Min: NONE

Abs. Max: $(0.25, 6.13)$ Abs. Min: NONE

Inc: $(-\infty, 0.25)$ Dec: $(0.25, \infty)$

Domain: \mathbb{R} Range: $(-\infty, 6.13]$



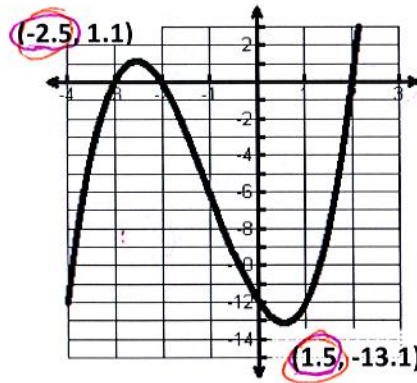
6. $f(x) = x^3 + 3x^2 - 4x - 12$

Rel. Max: $(-2.5, 1.1)$ Rel. Min: $(1.5, -13.1)$

Abs. Max: NONE Abs. Min: NONE

Inc: $(-\infty, -2.5) \cup (1.5, \infty)$ Dec: $(-2.5, 1.5)$

Domain: \mathbb{R} Range: \mathbb{R}



Classify by degree and terms, and the y-intercept:

7. $x^3 - 16 = 0$

Name: cubic, binomial

Y-Int: $(0, -16)$ # of Extrema: 2

8. $x^2 + x - 1 = 0$

Name: quadratic, trinomial

Y-Int: $(0, -1)$ # of Extrema: 1

9. $9x^4 + x^3 - 3x - 10 = 0$

Name: quartic, polynomial

Y-Int: $(0, -10)$ # of Extrema: 3

10. $x^3 - x - 2 = 0$

Name: cubic, trinomial

Y-Int: $(0, -2)$ # of Extrema: 2

11. $7x = 0$

Name: linear, monomial

Y-Int: $(0, 0)$ # of Extrema: 0

12. $-2x^3 + 7 = 0$

Name: cubic, binomial

Y-Int: $(0, 7)$ # of Extrema: 2