College Algebra	Name: _____
Study Guide 16	Class: _____
Due Date: _____	Score: _____

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. Consider $f(x) = x^3 - 3x^2 - 6x + 8$,

   (a) **(1 point)** What is the number of maximum zeros?

                          (a) _____

   (b) **(2 points)** Discuss the number of positive, negative, and complex zeros. Show your answer in a chart.

                          (b) _____

   (c) **(2 points)** List all possible rational zeros.
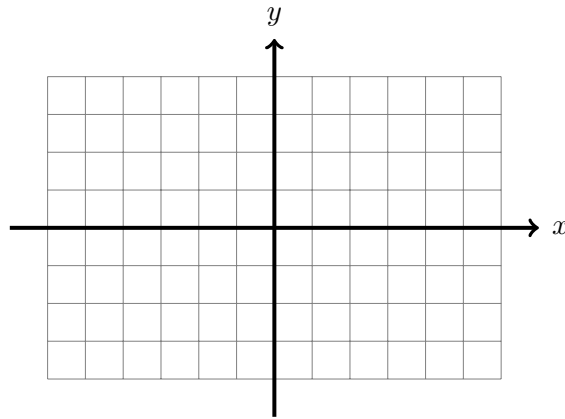
                          (c) _____

   (d) **(2 points)** Show that -3 is a lower bound.

                          (d) _____

   (e) **(3 points)** Find all zeros for this function.

                          (e) _____

(f) (3 points) Graph $f(x)$. Clearly mark all intercepts.

2. Consider $x^4 - 2x^3 + 10x^2 - 18x + 9 = 0$,

    (a) (3 points) Discuss the number of positive, negative, and complex zeros. Show your answer in a chart.

    (a) ——————

    (b) (2 points) List all possible rational zeros.

    (b) ——————

    (c) (2 points) Show that 2 is an upper bound.

    (c) ——————

    (d) (4 points) Find all zeros including complex zeros if there are any.

    (d) ——————

3. Consider $f(x) = \dfrac{x^2 - 4}{x^2}$,

    (a) **(2 points) Show that this is an even function.**

    (b) **(2 points) Rewrite $f(x)$ using factoring, then find its domain.**

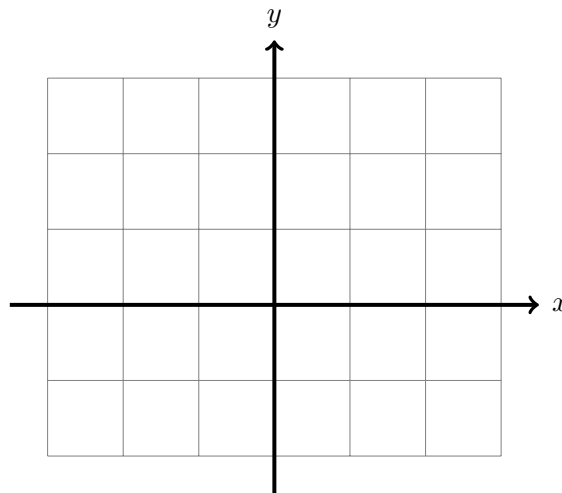   (b) _____

    (c) **(2 points) Find all its intercepts.**

                                                         (c) _____

    (d) **(2 points) Find all its asymptotes .**

                                                         (d) _____

    (e) **(3 points) Graph $f(x)$.**

    (f) **(2 points) Find intervals where $f(x) \leq 0$.**

                                                         (f) _____

4. Consider $f(x) = \dfrac{4}{x^2 - 3x - 4}$,

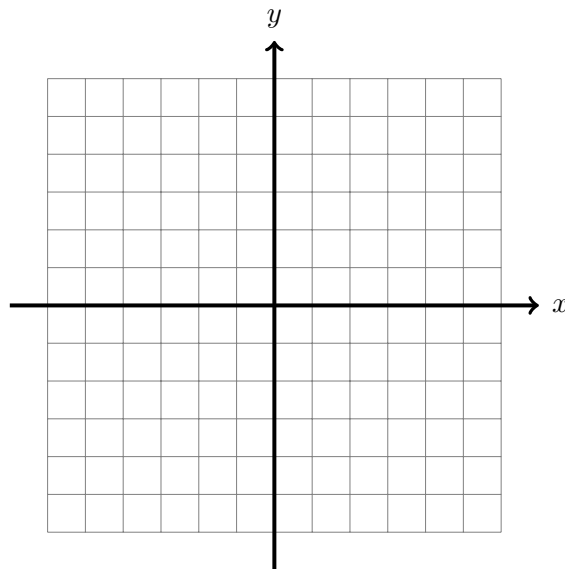   (a) **(2 points)** Rewrite $f(x)$ using factoring, then find its domain.

(a) _____

   (b) **(3 points)** Find all its intercepts.

(b) _____

   (c) **(3 points)** Find all its asymptotes .

(c) _____

   (d) **(3 points)** Graph $f(x)$.

   (e) **(2 points)** Find intervals where $f(x) \geq 0$.

(e) _____