

College Algebra

Name: \_\_\_\_\_

Study Guide 15

Class: \_\_\_\_\_

Due Date: \_\_\_\_\_

Score: \_\_\_\_\_

No Work  $\Leftrightarrow$  No Points

Use Pencil Only  $\Leftrightarrow$  Be Neat & Organized

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1. Consider  $f(x) = -x^3 + 9x$ ,

(a) (1 point) Find its  $y$ -intercept.

(a) \_\_\_\_\_

(b) (3 points) Find all  $x$ -intercepts.

(b) \_\_\_\_\_

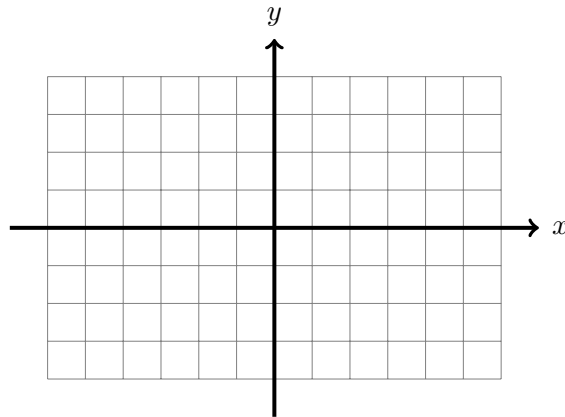
(c) (2 points) Discuss the endpoint behavior.

(c) \_\_\_\_\_

(d) (3 points) Construct the sign chart, and discuss the above and below the  $x$ -axis in interval notation.

(d) \_\_\_\_\_

(e) (3 points) Graph  $f(x)$ . Clearly mark all relevant information.



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

(a) (2 points) Find its  $y$ -intercept.

(a) \_\_\_\_\_

(b) (2 points) Find all  $x$ -intercepts.

(b) \_\_\_\_\_

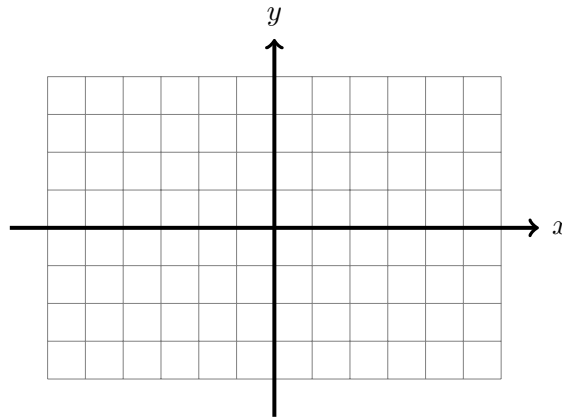
(c) (3 points) Discuss the endpoint behavior.

(c) \_\_\_\_\_

(d) (3 points) Construct the sign chart, and discuss the above and below the  $x$ -axis in interval notation.

(d) \_\_\_\_\_

(e) (3 points) Graph  $f(x)$ . Clearly mark all relevant information.



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

(a) (2 points) Find the domain, and express your answer in interval notation.

(a) \_\_\_\_\_

(b) (2 points) Find its  $y$ -intercept.

(b) \_\_\_\_\_

(c) (2 points) Find all  $x$ -intercepts.

(c) \_\_\_\_\_

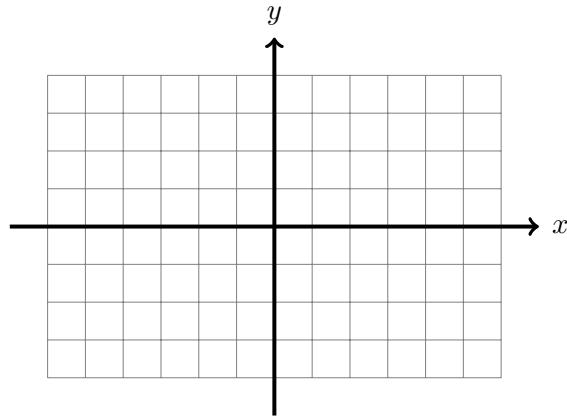
(d) (3 points) Find all its asymptotes

(d) \_\_\_\_\_

(e) (2 points) Does the graph of  $f(x)$  cross its horizontal asymptote?  
Show your work.

(e) \_\_\_\_\_

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



4. Consider  $f(x) = \frac{-x}{x^2 - 9}$ ,

(a) (2 points) Find the domain, and express your answer in interval notation.

(a) \_\_\_\_\_

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

(b) \_\_\_\_\_

(c) (3 points) Find all its asymptotes

(c) \_\_\_\_\_

(d) (3 points) Graph  $f(x)$ . Clearly mark all relevant information.

