

MAT 123 MIDTERM II, REVIEW SHEET

Section 1.9:10,12,21, 25.

Also answer the following:

(i) Graph the area function, find the x and y intercepts, find the maximum and/or minimum points on the graph.

(ii) Find the maximum/minimum area, and find the length and the width at which the area is maximum/minimum.

(2) Section 2.3: 15-20, 30, 57.

For problems 30 and 57, answer the following:

(i) What is the domain of the function?

(ii) What is the end-behavior of the function ?

(iii) x-intercept, y-intercept, turning points, what symmetry does the graph have?

(iv) local max, local min, value of the function at $x = 3$.

(v) graph the function on a scaled set of axes.

(3) Answer the following questions for the functions

(a) $\frac{x^2+x-12}{x^2-4}$ (b) $\frac{x^2-4x+3}{(x+1)^2}$

(i) What is the domain of the function?

(ii) Find the Horizontal asymptote(s), vertical asymptote(s), slant asymptote(s), if there are any.

(iii) x-intercepts, y-intercepts, what symmetry does the graph have? Find the value of the function at $x = -2$

(iv) Sketch the graph on a scaled set of axes.

(4) Section 3.1: 19 - 24, 25, 29.

(5) Suppose that you have \$ 12,000 to invest. Which investment yields the greatest return over 3 years? (a) 7% compounded monthly. (b) 6.85 % compounded continuously.

(6) Evaluate the following:

(i) $\log_2\left(\frac{1}{8}\right) + \log_6(\sqrt{6}) - \log_{81}(9)$

(ii) $\log_4(0.5) + 4^{3\log_4(5)}$

(iii) $(\log_2(64) + \log_3(81))^{\frac{3}{2}}$

(iv) $\sqrt{(3^{3\log_3(2)} + \log_{2.7}(2.7))}$

(v) $\log_3(\log_2(8))$