

Math 111 Worksheet 2

Show all work for full credit.

1. Find the domain **and** range for each of the following functions. Explain your answers.

a. $f(x) = 5 - \sqrt{2x+7}$

b. $f(x) = \frac{3}{\sqrt{x+12}}$

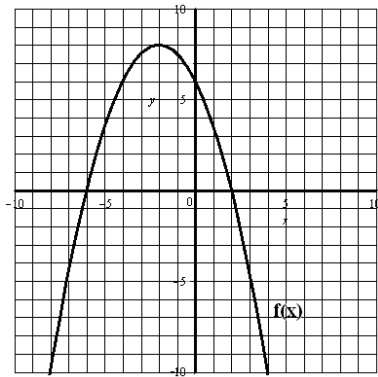
2. Find the domain (only) for each of the following. Show your work.

a. $f(x) = \sqrt{\frac{x-3}{x+7}}$

b. $f(x) = \sqrt{x+12} + \sqrt{8-x}$

3. Using the graph, determine the intervals over which $f(x)$ is increasing, decreasing, concave up, and concave down. Give your answers in interval notation.

a.



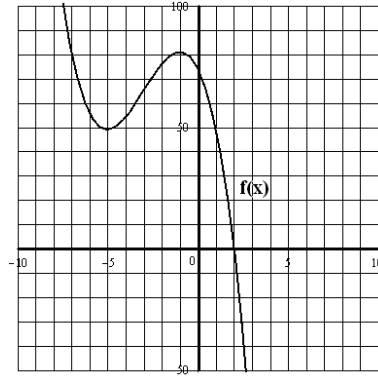
Increasing: _____

Decreasing: _____

Concave up: _____

Concave down: _____

b.



Increasing: _____

Decreasing: _____

Concave up: _____

Concave down: _____

4. Consider each of the following statements involving student enrollment, $E(t)$, at the university in the year t . Create a rough sketch illustrating enrollment as a function of time. Is your graph concave up, concave down, or neither?

a. The number of students enrolling is increasing faster and faster.

b. The enrollment is getting close to reaching its maximum.

c. Enrollment is decreasing steadily.

