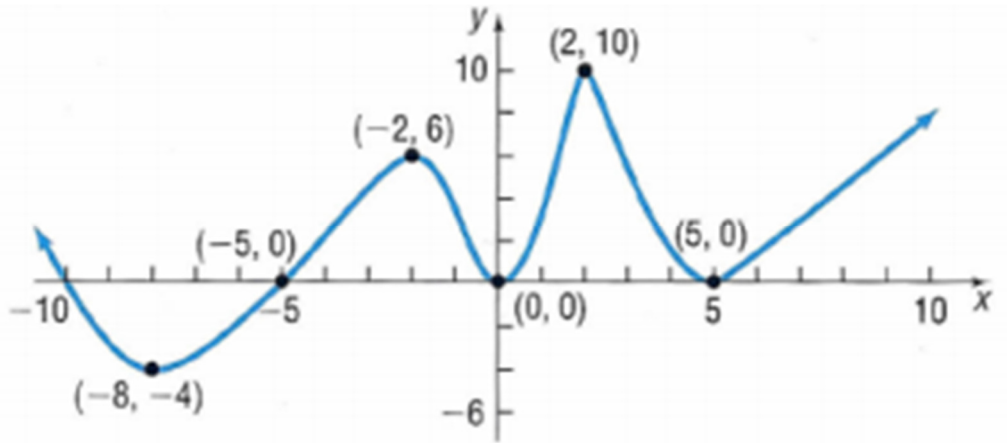1) USE FOUR DIFFERENT COLORS TO HIGHLIGHT EACH OF THE FOLLOWING:

• INTERVALS OF INCREASE • INTERVALS OF DECREASE	• X-COORDINATE OF EACH RELATIVE MINIMUM • X-COORDINATE OF EACH RELATIVE MAXIMUM

2) Determine whether each of the following represents an **interval** (x-values only) of increase or decrease.
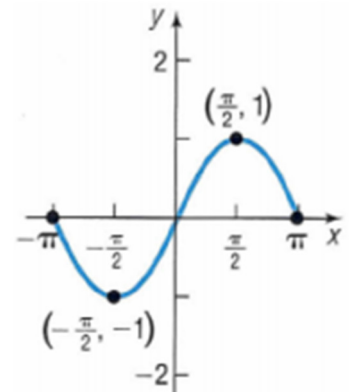   a) (2, 5)   b) (5, ∞)   c) (-8, -2)   d) (-2, 0)

_____   _____   _____   _____

3) Determine the intervals of concavity for this section of the sine function.

Concave Up:_____

Concave Down:_____

4) List the intervals of increase and decrease for the same section of the sine function above.

Interval(s) of Increase:_____   Interval(s) of Decrease:_____

5) During a study of an invasive study of fish, scientists approximate that the population in a lake is 300 fish in year one of the study. In year 4 of the study, the population climbed to 1200 fish.

a) Use the equation $y = ab^x$ to model the fish population.	b) What does the value of "a" represent in the equation you wrote?

c) According to your equation, how long will it take for the fish population reaches 2000 fish?
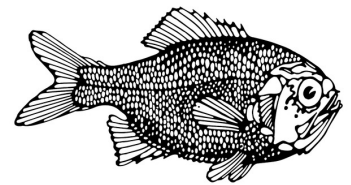
d) If nothing is done to stop the population growth, find the approximate fish population in 7 years.