Chapter 7 Problems of the Week

1. Create a polynomial that represents the following situation: Lucy makes $9/h, and time and a half for every hours she works over 40 h per week. Write a polynomial for her maximum weekly income. Then, write the polynomial in its simplest form.

2. A circle of radius x shares a midpoint with a circle of radius $2x$. What is the ratio of the area of the circle of radius x to the area of the circle of radius $2x$?

3. A farmer buys a number of hens. Each hen lays one egg a day. Each fertilized chicken egg takes 20 weeks to mature.

a) Create a polynomial that shows the maximum number of mature eggs per year that could be produced by the hens the farmer bought.

b) The farmer allows some eggs to become hens. What are some factors to consider when creating a polynomial for estimating the number of eggs available for eating?

4. A container ship holds containers with a volume of $12x^2$. Its cargo hold allows the containers to be loaded 10 across its width, 25 along its length, and 4 high. The length of each container is $2x$ and the height of each container is half the length. Determine as many possible lengths, widths, and heights of the cargo hold as you can. Check your answer(s).