Significant Digit Problems

1. Determine the number of significant digits in the problems below:
   a. 0.0120 m
   b. 100.5 mL
   c. 101 g
   d. 350 cm^2
   e. 0.97 km
   f. 1000 kg
   g. 180. mm
   h. 0.4936 L
   i. 0.020700 s
   j. $ 200

2. Round the following quantities to the specified number of significant digits:
   a. 5487129 m to three significant digits
   b. 0.013479265 mL to six significant digits
   c. 31947.972 cm^2 to four significant digits
   d. 192.6739 m^2 to five significant digits
   e. 786.9164 cm to two significant digits
   f. 389277600 J to six significant digits
   g. 225834.762 cm^3 to seven significant digits

3. Solve the following problems using the correct number of significant digits and unit:
   a. 651 cm x 75 cm
   b. 7.835 kg / 2.5L
   c. 14.75 L / 1.20 s
   d. 360 cm x 51 cm x 9.07 cm
   e. 5.18 m x 0.77 m x 10.22 m
   f. 34.95 g / 11.169 cm^3

4. A rectangle measures 87.59 cm by 35.1 mm. Calculate the area of the rectangle using the following units: (use the correct number of significant digits in the answers)
   a. cm^2
   b. mm^2
   c. in^2

5. A 125 mL sample of liquid has a mass of 0.16 kg. What is the density of the liquid in the following units: (use the correct number of significant digits in the answers)
   a. kg/m^3
   b. g/mL
   c. kg/L
6. Solve the following problems using the correct number of significant digits and unit:
   a. 13.75 mm x 10.1 mm x 0.91 mm
   b. 89.4 cm^2 x 4.8 cm
   c. 14.9 m^3 / 3.0 m^2
   d. 6.975 m x 30 m x 21.5 m

7. A container measures 30.5 mm x 202 mm x 153 m. When it is full of liquid, it has a mass of 1.33 kg, and when it is empty it has a mass of 0.30 kg. What is the density of the liquid in <u>kg/L</u>? (use the correct number of significant digits in the answers)