Significant Figures Worksheet

How many significant figures are in each of the following numbers?

1)   5.40 _____   6) 1.2×10^3 _____

2)   210 _____   7)   0.00120 _____

3)   801.5 _____   8)   0.0102 _____

4)   1,000 _____   9) 9.010×10^{-6} _____

5)   101.0100 _____   10)   2,370.0 _____

Calculations with Significant Digits.

Multiplying and Dividing. The rule for these functions is that your answer can only have as many significant digits as the number with the lowest number of significant digits.

For example (2.3 cm x 5.75 cm)
The product of this equation is 13.225 cm^2 this value has 5 significant digits. However 2.3 cm has only 2 significant digits, therefore our answer to be correct can only have 2 significant digits. So, 2.3 cm x 5.75 cm= 13 cm^2

Answer the following by showing the arithmetic answer and then the answer with the correct number of significant digits.
a) 7.8 m x 12.4 m   b) 0.0034 cm^3 x 22.5 g/cm^3
c) 22.4 L^2 / 4 L   d) 42.5 g / 22.5 mL
e) 1.225×10^6 mol x 22.45 g/mol

Adding and Subtracting. The rule for theses calculations is the answer can only have as many decimal places as the lowest number used in the equation.

For example (2.3 cm + 5.75 cm)
The sum of this equation is 8.05 cm, this value has 2 decimal places. However, 2.3 cm has only 1 decimal place so the answer can only have 1 decimal place. So, 2.3 cm + 5.75 cm = 8.1 cm (note that we round up when the value is 5 or greater)

Answer the following by showing the arithmetic answer and then the answer with the correct number of significant digits.
a) 0.003 g + 1.224 1 g   b) 75.5 cm − 22 cm
c) 1.45×10^{-3} m + 2.22×10^{-4} m   d) 23.987 1 kg − 0.002 34 kg