1. Determine the number of significant figures (s.f.) in each of the following:

a) 921

b) 92100

c) 92100.

d) 0.000210 3

e) 0.00219

3

f) 93,000,000

2

g) 93,000,003 &

h) 93,000,000. 8

2. How many sig. figs in the following number?

2

3 隆 b) 190.

c) 0.000190 3

d) 606.0 4

e) 1.008 4

3. Round off the following to 2 S.F.

a) 86730 87000 b) 120.99 120 c) .0003450 0.00035 d) 0.0555 0.066 e) 9898989 9900000 9.9×10^{6}

There are also rules for reporting numbers when you multiply and/or divide:

1) Count the sig. figs. in the numbers you are multiplying and/or dividing. Your answer should be rounded off to the smallest number of sig. figs. in your problem.

Example: a) 28.33 x 3.12 4 s.f. 3 s.f.

"88.3896" ←----calculator answer

6 s.f.

so round to 3 s.f.

Your answer will be reported as 88.4

b) 28.44 ÷ 3.12

3 s.f. 4 s.f.

"9.080128205" ←----calculator answer

 \uparrow 6 s.f.

so round to 3 s.f.

Your answer will be reported as 9.08

Reminder: Rounding-off rules: Go to next number. If it is 0-4, round down. If it is 5-9, round up.

Report the answer to the following problems, paying particular attention to the correct number of sig. figs.

a) 986.72 / 5.12 = 193 (3 sig)

b) 497.7/3.0 = 170 (2519)

c) 920.7 / 4.32 = 213 (3 sig)

d) $400.20 \times 3.010 = /205$ (4 sig)

e) $98 \times 0.006 =$ 0.6 (153)

f) .009430 x 4310.9 = 40.65 (4 sig)

g) $45.20 \times 0.0071 = 0.32$ (2)

h) 9.0/3.0 = 3.0 (2 sig)

i) 10. x 300. = 3,00 x 103 (3 sig)

j) 10./3 = 3 (1siq)

There are also different rules for reporting the answer when you add or subtract:

1) The answer should have the same number of decimal places as that of the number with the least decimal.

Example: 4.838 g +1.0023 g 5.3853 g = 5.385 gis 0-4, so round down.

486.58 g

$$-421$$
. g
65.58 g = 66 g
 \uparrow
is 5-9, so round up.

NOTE: IN ADDITION AND SUBTRACTION, DECIMAL POINTS MUST BE LINED UP!!

Solve the following:

Additional practice problems:

How many sig. figs in the following number?

Round off the following to 2 S.F.

How many S.F. should be in the following answers: (Don't work out the problems!)

a)
$$0.2 \times 43.98 = 1$$

c)
$$43.0 - 17.2 = 3$$

d)
$$0.00235 - 3.0 = 2$$

e)
$$143.000 - 3.45 =$$
 (139.55) f) $3.40 \times 0.04 =$ 2

f)
$$3.40 \times 0.04 =$$

g)
$$0.300 \times .802 = 3$$

30.44

i)
$$\frac{0.00390 \times 2.0098}{2.02} = \frac{3}{2.02}$$

Solve the following problems:

b)
$$43.2 \times 30.3 \times 17.0 = /200$$

 $43.30 \times 0.0045 \times 99$ / 2×10^3

e)
$$8.0_{-1.99}$$
 = 6.0

f)
$$17.0 + 1.4 - 8.9 =$$
7.5

How many S.F. are in the following numbers?

f)
$$9.4450 \times 10^7$$
 5