Math 8   8.3 Percent of a Number
                          pg 274-279

Focus : I will be able to
1) use mental math strategies to estimate the
   percent of a number
2) use multiple strategies to solve problems
   involving percents

Benchmark % will help with estimating the percent
of a number. It is expected you can do the estimating
without a calculator. These % have a simple
fractional equivalent.

Percent Benchmarks (of the number)

$100\% = \frac{15}{15} 1$ $25\% = \frac{1}{4}$ $12\frac{1}{2}\% = \frac{1}{8}$

$10\% = \frac{1}{10}$ $50\% = \frac{1}{2}$ or $\frac{2}{4}$ $20\% = \frac{1}{5}$

$1\% = \frac{1}{100}$ $75\% = \frac{3}{4}$

$0.1\% = \frac{1}{1000}$

Example 1   Use Mental Math to find the Percent of a Number

a) Use mental math to determine 150% of $\$5$
   Step 1 - Break down 150% into easier components
   to $150\% = 100\% + 50\% = 100\% + 10\% + 10\% + 10\%$
                                              $+ 10\% + 10\%$
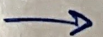 $5 - 10\%$

   Step 2 - calculate your benchmarks

   100% of $5 = ⑤$
   10% of $5 = 0.5 = 0.5$ $100\% + 10\% + 10\% + 10\% + 10\% + 10\%$
   1% of $5 = 0.5 = 0.05$

Move decimal
over 1 to
left

Move decimal
over 2 places
left

                    $5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$
                    $= ⑦.⑤$ ✓

b) Use mental math to determine 0.2% of 1000.

   0.2% = 0.1% + 0.1%

If 100% of 1000 = 1000   0.1% + 0.1%

    10% of 1000 = 100   1   +   1

    1% of 1000 = 10   = 2 ✓

    0.1% of 1000 = 1

c) $1\frac{1}{2}$% of 20000

   = 1% + $\frac{1}{2}$%   1% + $\frac{1}{2}$%

                                                      = 1% + 0.5%

If 100% of 20000 = 20000   = 1% + 0.1 + 0.1 + 0.1 + 0.1

    10% of 20000 = 2000   + 0.1

    1% of 20000 = 200   * $\underbrace{\qquad\qquad}$

    0.1% of 20000 = 20   *   5 (0.1)

    1%   + 0.1% + 0.1% + 0.1% + 0.1% + 0.1%

    200 +   20   +   20   +   20   +   20   + 20

                    = 300 ✓

                                                                          →

Example 2 (Pg 276) Calculate the Percent of a Number.

A student council conducts an annual survey of students in their school. This year, they surveyed all 1600 students at school.

a) The survey showed that 1/4% of students usually arrive more then an hr. before school. How many students is this

$\frac{1}{4}\%$ of 1600 students = ___?___

$(= \frac{1}{4})$ Change to decimal %

0.25%   ×   1600   =   _____

Change to decimal (8.2)

(0.25)÷100

0.0025   ×   1600   =   4 students. ✓

b) of the 680 students in grade 11 & 12, 92.5% have a cell phone. How many students is this?

92.5% of 680 = _____
0.925   ×   680   =   629 students ✓

c) The survey showed that the number of students who planned to walk or ride a bike to school is 108%. If 875 students walked or rode a bike last year, how many is that this year?

108% of 875 = _____
1.08   ×   875   =   945 students.

→

Practice Q's for 8.3 pg 277

1, 2 (A, C)
4, 5 (A, C)
6 - 10
17 challenge