

# EVALUATING EXPRESSIONS WITHOUT USING A CALCULATOR

Do the following *without your calculator*. You can expect to see similar problems on the next test. No calculators of any type will be allowed on Test 2.

A. Example: Evaluate  $\frac{60}{.02}$       Solution:  $\frac{60}{.02} = \frac{60(100)}{.02(100)} = \frac{6000}{2} = 3,000$

- Evaluate the following:

1)  $\frac{50}{.1}$       2)  $\frac{500}{.001}$       3)  $\frac{8000}{.04}$       4)  $\frac{16000}{.004}$

B. Example: Evaluate  $.06(20,000)$       Solution:  $.06(20,000) = 6(200) = 1200$     b/c it's:

$$\frac{6}{100} \left( \frac{20,000}{1} \right) = \frac{6}{1} \left( \frac{200}{1} \right) = 1200$$

OR, b/c it's:

$$.06(100)(20,000) \left( \frac{1}{100} \right) = 6(200) = 1200$$

- Evaluate the following:

1)  $.05(1000)$       2)  $.004(200,000)$       3)  $.0006(1,000,000)$       4)  $.03(12,000)$

- Find: 5) 5% of 1000      6) .4% of 200,000      7) .06% of 1,000,000      8) 3% of 12,000

C. Example: Simplify  $\frac{10}{\frac{1}{9}}$       Solution:  $\frac{10}{\frac{1}{9}} = 10 \div \frac{1}{9} = 10 \cdot \frac{9}{1} = 90$

- Simplify the following:

1)  $\frac{80}{\frac{1}{4}}$       2)  $\frac{200}{\frac{1}{10}}$       3)  $\frac{40}{\frac{2}{5}}$       4)  $\frac{300}{\frac{3}{10}}$

D. Example: Reduce  $\frac{12}{32}$       Solution:  $\frac{12}{32} = \frac{3 \cdot 4}{8 \cdot 4} = \frac{3}{8}$

- Reduce the following:

1)  $\frac{24}{30}$       2)  $\frac{220}{40}$       3)  $\frac{64}{48}$       4)  $\frac{54}{12}$

E. Simplify the following. Refer to the sections in your text on radicals and rational exponents in P3, for examples.

1)  $\sqrt{100}$

2)  $\sqrt{-100}$

3)  $\sqrt[3]{27}$

4)  $\sqrt[3]{-27}$

5)  $2^3$

6)  $(2^3)^2$

7)  $2^{-3}$

8)  $(2^3)^{-2}$

9)  $-3^2$

10)

$(-3)^2$

---

Answers:

A. 1) 500    2) 500,000    3) 200,000    4) 4,000,000

B. 1) 50    2) 800    3) 600    4) 360    5) 50    6) 800    7) 600    8) 360

C. 1) 320    2) 2000    3) 100    4) 1000

D. 1)  $\frac{4}{5}$     2)  $\frac{11}{2}$     3)  $\frac{4}{3}$     4)  $\frac{9}{2}$

E. 1) 10    2) not a real number    3) 3    4) -3    5) 8    6)  $2^6 = 64$     7)  $\frac{1}{8}$     8)  $2^{-6} = \frac{1}{64}$

9)  $(-1)(3^2) = -9$     10)  $(-3)(-3) = +9$