



MATHEMATICS 508

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I. Part One

Objectives

Learn about zero as a place holder in decimals.

Learn to use the calculator.

Practice division with a two-digit divisor.

▲ Zero has no value. Zero is a place holder.

- The zero place holder is used to the *right* of the digits in whole numbers.
- The zero does not change the value of the number when it is the first digit written to the *left*.

1.1 Cross out the zeros that do not change the value of the whole number.

056

3,008

0,415

003,002

170

010,900

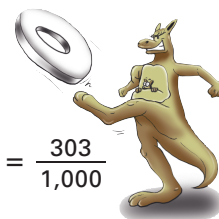
- The zero place holder is used to the *left* of the digits in decimals.
- The zero place holder changes the denominator of the fraction.

$$.3 = \frac{3}{10}$$

$$.03 = \frac{3}{100}$$

$$.003 = \frac{3}{1,000}$$

$$.303 = \frac{303}{1,000}$$



1.2 Write the value of each decimal as a fraction.

a. .002 _____ .04 _____ .008 _____ .09 _____

b. .5 _____ .05 _____ .005 _____ .506 _____

c. .056 _____ .41 _____ .041 _____ .401 _____

- The zero does not change the value of the number when it is the last digit written to the *right* of the decimal.

$$.3 = .30 \quad \frac{3}{10} \text{ and } \frac{30}{100} \text{ are equivalent fractions.} \quad \frac{30}{100} \div \frac{10}{10} = \frac{3}{10}$$

1.3 Write the decimals as fractions. Are they equivalent fractions?
Circle the larger fraction. Can it be reduced to the smaller fraction?
Write the correct symbol ($=$, \neq) on the line.

a. .4 _____ () .40 _____ .2 _____ () .02 _____ .50 _____ () .5 _____

b. .5 _____ () .50 _____ .08 _____ () .080 _____ .03 _____ () .3 _____

c. .32 _____ () .320 _____ .403 _____ () .43 _____ .081 _____ () .81 _____

You will need a calculator.



Calculators help us solve problems quickly and accurately.

- Calculators give correct answers only when the information is entered correctly. It is important to use estimation and pattern skills to decide whether the answer on the calculator is reasonable.

We know the answer to $243 + 586 \neq 80,028$ because ...
 estimation tells us ... $200 + 600 = 800$,
 patterns tell us ... an odd number (3) + even number (6) = odd number (9).

- Calculators may differ. If your calculator does not follow the steps shown, you will need to follow the directions that came with it when it was purchased.

Locate the following buttons on your calculator.

All Clear - AC or C equal = add + subtract - multiply x divide ÷

Follow the steps in the examples using your calculator.
 Begin each operation by pushing the All Clear (AC) button.
 The answer to the problem will appear in the calculator window.
 To **enter** means to push the buttons of the number
 or the operation sign on the calculator.

Add

	Push All Clear (AC).
26	Enter 26 and add (+).
75	Enter 75 and add (+).
<u>+ 82</u>	Enter 82 and equal (=)
183	Check for reasonable answer.

Subtract

	Push All Clear (AC).
4,384	Enter 4,384 and subtract (-).
<u>- 1,296</u>	Enter 1,296 and equal (=).
3,088	Check for reasonable answer.

Multiply

	Push All Clear (AC).
269	Enter 269 and multiply (x).
<u>x 35</u>	Enter 35 and equal (=).
9,415	Check for reasonable answer.

Divide

	Push All Clear (AC).
650 ÷ 25	Enter 650 and divide (÷).
	Enter 25 and equal (=).
= 26	Check for reasonable answer.

- Some division problems have remainders. The remainders will show as decimals. You will learn more about dividing decimals in Part IV.

1.4

Complete each problem using your calculator.

Check for a reasonable answer. Reenter the problem if necessary.

Circle each answer to show that you believe it is a reasonable answer.

$$\begin{array}{r} \text{a.} \quad 36 \\ \quad 48 \\ + \quad 62 \\ \hline \end{array}$$

$$\begin{array}{r} 752 \\ \quad 68 \\ + \quad 485 \\ \hline \end{array}$$

$$\begin{array}{r} 384 \\ \quad 520 \\ + \quad 341 \\ \hline \end{array}$$

$415 + 842 + 56 = \underline{\hspace{2cm}}$

$8,255 + 2,384 = \underline{\hspace{2cm}}$

$54,628 + 37,182 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \text{b.} \quad 682 \\ - \quad 329 \\ \hline \end{array}$$

$$\begin{array}{r} 4,628 \\ - \quad 923 \\ \hline \end{array}$$

$$\begin{array}{r} 9,560 \\ - \quad 3,879 \\ \hline \end{array}$$

$6,450 - 4,382 = \underline{\hspace{2cm}}$

$62,639 - 723 = \underline{\hspace{2cm}}$

$70,381 - 25,579 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \text{c.} \quad 35 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 328 \\ \times 65 \\ \hline \end{array}$$

$$\begin{array}{r} 687 \\ \times 98 \\ \hline \end{array}$$

$515 \times 137 = \underline{\hspace{2cm}}$

$427 \times 293 = \underline{\hspace{2cm}}$

$3,648 \times 24 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \text{d.} \quad 3 \overline{)198} \\ \hline \end{array}$$

$$8 \overline{)658}$$

$$7 \overline{)448}$$

$832 \div 32 = \underline{\hspace{2cm}}$

$637 \div 49 = \underline{\hspace{2cm}}$

$2,387 \div 62 = \underline{\hspace{2cm}}$

1.5

List the factors of each number. Then list the first five multiples (except 0).

3 _____

8 _____

12 _____

15 _____

▲ Estimation helps us complete division problems.

■ Estimation gives us a place to begin. It is not always exact.

Estimate. Round 46 to 50.

Try to divide 50 into 3 and 37.

They are too small to be multiples of 50.

Try to divide 50 into 374. The largest multiple of 50 that is equal to or less than 374 is 350. $7 \times 50 = 350$.

Write 7 in the quotient above 4. Multiply. $7 \times \text{the divisor (46)} = 322$

Write 322 below 374 in the problem. Subtract. $374 - 322 = 52$

Compare. 52 is greater than the divisor (46).

We must begin again.

$$\begin{array}{r} 7 \\ 46 \overline{)374} \\ \underline{322} \\ 52 \end{array}$$

50

$$\begin{array}{r} 8 \text{ R}6 \\ 46 \overline{)374} \\ \underline{368} \\ 6 \end{array}$$

Because 7 is too small, we will try 8.

Write 8 in the quotient above 4. Multiply. $8 \times \text{the divisor (46)} = 368$

Write 368 below 374 in the problem. Subtract. $374 - 368 = 6$

Compare. 6 is less than the divisor (46).

There are no numbers in the dividend to bring down.

The answer is 8 with a remainder of 6.

■ Remember these rules.

If you cannot subtract,

the number in the quotient is too large.

If you compare and the difference is larger than the divisor,

the number in the quotient is not large enough.

1.6 Divide. If you have chosen the wrong number, try again!

a.

$$43 \overline{)289}$$

$$35 \overline{)289}$$

$$58 \overline{)291}$$

$$22 \overline{)196}$$

b.

$$34 \overline{)133}$$

$$42 \overline{)248}$$

$$71 \overline{)563}$$

$$35 \overline{)347}$$
