

## Concept: Multiplication and Division of Decimals


Name:

- You should have completed Fractions - Section 15 Part A and B: Multiplication and Division of Decimals before beginning this handout.

### PART C: COMPUTER COMPONENT

**Instructions:** In UMATH X follow the **Content Menu** path:

**Fractions > Multiplication and Division of Decimals**

 Work through all Sub Lessons of the following Lessons **in order**:

- *Fractions to Decimals*
- *Repeating Decimals*
- *Rounding Decimals*
- *Fractions to Decimals Division Table*
- *Compare Fractions*
- *Decimals to Fractions*
- *Decimal Parts of a Tangram*
- *Shapes in a Square*
- *My Day*



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

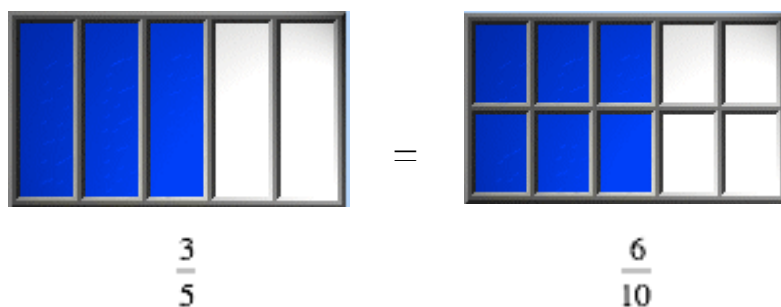
### NOTES

#### 1. Fractions to Decimals

- (a) To change the fraction to a decimal we can **divide** the *numerator* by the **denominator**.

$$\frac{3}{8} = 8 \overline{)3} = 0.375$$

- (b) We can also work with **equivalent** fractions, which will assist us in changing **fractions** to decimals.



$$\frac{6}{10} = 0.60$$

## 2. Repeating Decimals ... An Example

$$\frac{4}{9} = 9 \overline{)4}$$

Instead of dividing forever, we write  $\frac{4}{9} = 0.\overline{44}$

(a) *What does a line over a number tell us? **The line over a number tells us that this number repeats itself infinitely.***

## 3. Rounding Decimals

### Rule for Rounding:

*If a digit is 5 or greater, you round up. If the digit is less than 5, you round down.*

## 4. Compare Fractions

(a) Fractions can be compared if they have common denominators.

$$\frac{5}{8} \quad ? \quad \frac{9}{16}$$

$$\frac{5}{8} \text{ becomes } \frac{10}{16} > \frac{9}{16}$$

(b) Decimal equivalents are found by dividing the denominator by the numerator.

$$\frac{5}{8} \text{ becomes } 8\overline{)5} \quad \text{and} \quad \frac{9}{16} \text{ becomes } 16\overline{)9}$$

## 5. Decimals to Fractions

Complete the table below from the computer program.

	Ones	Tenths	Hundredths	Thousandths	Sum
0.7	0	7			
0.07	0	0	7		
0.007	0	0	0	7	
2.25	2	2	5		
3.41	3	4	1		

$$0.7 = \underline{0} \text{ ones} + \underline{7} \text{ tenths} = \underline{7} \text{ tenths} = \frac{7}{10} \quad (\text{fraction})$$

$$0.07 = \underline{0} \text{ ones} + \underline{0} \text{ tenths} + \underline{7} \text{ hundredths} = \underline{7} \text{ hundredths} = \frac{7}{100}$$

$$0.007 = \underline{0} \text{ ones} + \underline{0} \text{ tenths} + \underline{0} \text{ hundredths} + \underline{7} \text{ thousandths} = \underline{7} \text{ thousandths} = \frac{7}{1000}$$

$$2.25 = \underline{2} \text{ ones} + \underline{2} \text{ tenths} + \underline{5} \text{ hundredths} = \underline{2} \text{ ones } \underline{2} \text{ tenths } \underline{5} \text{ hundredths} = 2\frac{25}{100}$$

$$3.41 = \underline{3} \text{ ones} + \underline{4} \text{ tenths} + \underline{1} \text{ hundredths} = \underline{3} \text{ ones } \underline{4} \text{ tenths } \underline{1} \text{ hundredths} = 3\frac{41}{100}$$

### OFF COMPUTER EXERCISES

1. Round to the nearest hundredth.

(a)  $0.875 = \mathbf{0.88}$

(b)  $2.666 = \mathbf{2.67}$

(c)  $0.091 = \mathbf{0.09}$

2. Change from a decimal to a fraction.

(a)  $0.12 = \frac{12}{100} = \frac{3}{25}$

b)  $0.375 = \frac{375}{1000} = \frac{3}{8}$

$$(c) 0.75 = \frac{3}{4}$$

$$(d) 0.561 = \frac{561}{1000}$$

$$(e) 0.\overline{45} = \frac{5}{11}$$

$$(f) 7.444 = 7\frac{4}{9}$$

3. Change from a fraction to a decimal.

$$(a) \frac{2}{5} = \mathbf{0.4}$$

$$(b) \frac{5}{8} = \mathbf{0.62}$$

$$(c) \frac{4}{7} = \mathbf{0.57}$$

$$(d) \frac{17}{5} = \mathbf{3.4}$$

$$(e) \frac{7}{8} = \mathbf{0.875}$$

$$(f) \frac{9}{11} = \mathbf{0.8}$$

4. Compare the following fractions

$$(a) \frac{4}{12} \text{ --- } > \text{ --- } \frac{9}{36}$$

$$(b) \frac{6}{18} \text{ --- } < \text{ --- } \frac{4}{9}$$

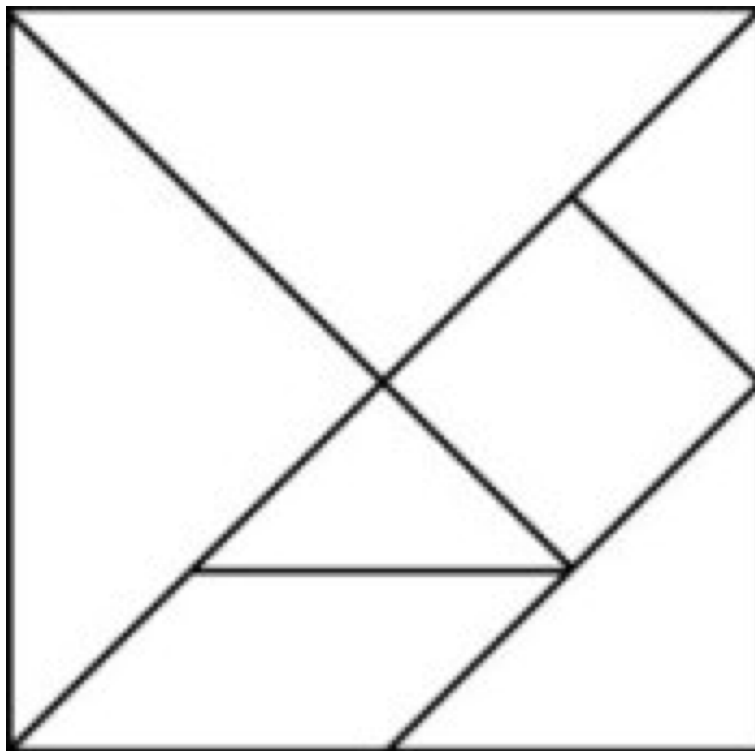
$$(c) \frac{7}{9} \text{ --- } < \text{ --- } \frac{11}{14}$$

$$(d) \frac{6}{11} \text{ --- } < \text{ --- } \frac{9}{15}$$

5. *Tangrams* are excellent tools that may be used to demonstrate many concepts in fractions, decimals and percents.

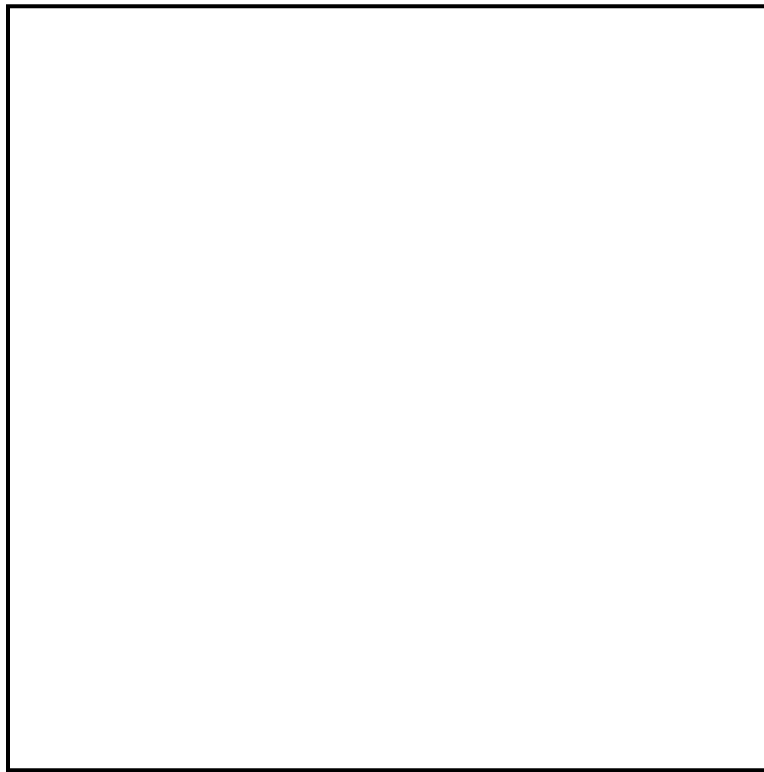
This tangram has been made available for you to use for the next series of questions.

*Carefully cut out all of the individual shapes.*



Place all seven of the tangram pieces on this square.

- Move the tangram pieces around, compare them, and establish the decimal value of each piece.
- Label each piece with its decimal value.



6. Place your tangram pieces back on the above square and answer the following questions.

- What decimal part of the whole tangram are the two large triangles? **0.50**
- What decimal part of the whole tangram is one large triangle? **0.25**
- What decimal part of a large triangle is the medium triangle? **0.375**
- What decimal part of the whole tangram is the medium triangle? **0.125**
- What decimal part of the whole tangram is the small triangle? **0.0625**
- What decimal part of the whole tangram is the small square? **0.125**

7. Determine the 25<sup>th</sup> digit to the right of the decimal point when  $\frac{41}{333}$  is converted to a decimal.

***The 25<sup>th</sup> digit to the right of the decimal point is 1.***