

Lecture Notes

Division Formats and Labels

- You must be able to interchange between the *three division formats*:
 - **Obelus** (aa·buh·luhs): $238 \div 7$
 - **Long division** symbol: $7 \overline{)238}$
 - **Fraction bar**: $\frac{2}{5}$ or $2/5$ or using the numbers above: $\frac{238}{7}$ or $238/7$
 - Use correct verbalization for the three division formats.
- You must be able to *label the four sections* of division, especially long division:
 - **Divisor**: the number we divide BY. It goes to the left of the “division box.”
 - **Dividend**: the number we divide INTO. It goes inside the box.
 - **Quotient**: the whole number part of the answer. It goes on top of the box.
 - **Remainder**: the number left over if the divisor did not divide into the dividend *evenly*. It can either stay at the bottom of the long division steps or go to the right of the quotient with a capital “R” preceding the number. Ex: R5.
 - You must be able to label the four sections of long division with all three division formats.

Properties of Division

Divide By 1

- If a number is divided by 1, the answer (quotient) is that number itself. Ex: $7 \div 1 = 7$

Divide By Itself

- If a number is divided by itself, the answer is 1. Ex: $7 \div 7 = 1$

Divide Into 0

- You must be able to divide **INTO** zero using three division formats.
- When dividing INTO zero, the answer is **0**.

$$\frac{0}{3} = 0 \qquad 0 \div 3 = 0 \qquad 3 \overline{)0} = 0$$

Divide By 0

- You must be able to divide **BY** zero using three division formats.
- When dividing BY zero, the answer is **undefined** (not defined).

$$\frac{772}{0} = \text{Undefined} \qquad 772 \div 0 = \text{Undefined} \qquad 0 \overline{)772} = \text{Undefined}$$

Dividing with Zero

- Verify a zero answer using the equation form. Ex 1: $\frac{6}{2} = 3$ then Ex 2: $\frac{0}{3} = 0$
- Pizza box analogy. **Part / Whole**: $\frac{3}{8}$ then $\frac{0}{8}$ or $\frac{8}{0}$
- Use memory aids to help you remember whether the answer is 0 or undefined.

Long Division

Notes

- If you have not yet mastered the multiplication facts, division will be extremely difficult, if not impossible, for you to complete.

4-Step Process

Step 1: Divide.

Step 2: Multiply.

Step 3: Subtract.

Step 4: Bring down next digit.

Repeat: Go back to *Step 1* and keep repeating the process until there are no more digits to bring down from the dividend.

Divide.

$$9 \overline{) 4518}$$

Divide.

$$295 \div 6$$

- Change from *obelus format* to *long division format* then divide.

Divide.

$$6 \overline{) 2116}$$

Divide.

$$3 \overline{) 4524}$$

Divide and c

$$5 \overline{) 4726}$$

Divide and c

$$4 \overline{) 1553}$$