MATH085 Sec 2.9 and 2.10 Operations on Mixed Numbers

Operations on Mixed Numbers

To multiply/divide mixed numbers, first convert them to improper fractions.

Example 1: Perform the following operations and simplify, if possible.

a) \( \frac{5}{9} \cdot 4 \frac{1}{5} \)

b) \( 5 \div 3 \frac{3}{4} \)

c) Find \( \frac{2}{7} \) of 56. Note: Remember that “of” means ________________.

Area and Volume

Use the following formulas to find area and volume.

Area of a rectangle: \( A = l \cdot w \) squared units

Area of a triangle: \( A = \frac{1}{2} \cdot b \cdot h \) squared units

Volume of a rectangular solid: \( V = l \cdot w \cdot h \) cubed units

Example 2: Find the volume of a rectangular solid with dimensions \( 9 \frac{2}{5} \) inches by \( 3 \frac{1}{3} \) inches by 6 inches.
Example 3: Perform the following operations and simplify, if possible.

a) \(23 \frac{3}{5} + 8 \frac{8}{15}\) 

b) \(6 \frac{2}{13} - 4 \frac{7}{26}\)

There is another method of adding/subtracting whole numbers using a vertical formant. To do so, add/subtract the whole number parts and then the proper fraction parts (you may have to find a LCD). Then, combine the whole number and proper fraction part.

Note: See your text, pg. 289 for more examples.

Example 4: Perform the following operations using a vertical format.

a) \(\frac{23}{5} + 8 \frac{8}{15}\) 

b) \(\frac{6}{13} - 4 \frac{7}{26}\)
To add two mixed numbers of the same sign, add the absolute values and keep the sign.

Example 5:  \(-20 \frac{2}{5} - 30 \frac{3}{10}\)

To add two mixed numbers of different signs, subtract the absolute values and keep the sign of the number with the largest absolute value.

Example 6:  \(42 \frac{2}{9} - 50 \frac{1}{3}\)

https://www.youtube.com/watch?v=KrtORfirVKI&index=37&list=PL9dj44OpeMZc_qNgDr_lqqnRjvGNkePq7

Example 7:  Bob wants to build a bookcase with six equally spaced shelves. Ignoring the width of the shelves, he finds he has 5 ½ feet of vertical space for the shelves. **How far apart should he space the shelves?**

Example 8:  The nutrition label on a can of chili shows that there are 26 grams of carbohydrates for each cup of chili. **How many grams of carbs** are there in 2 ½ cups?
Example 9: Betty is planning a barbeque. If she buys 27 ¾ pounds of hamburger, how many quarter-pound hamburgers can she make?

Example 10: If the total weight limit allowed for luggage without extra charges on an airplane is 50 pounds and your luggage weighs 60 5/8 pounds, how many pounds over the limit are you?