1b-LCM and Common Denominators

I CAN APPLY STRATEGIES TO FIND LOWEST COMMON MULTIPLES AND COMMON DENOMINATORS

- A __multiple__ is the <mark>product</mark> of __two__ integers.
- To find multiples __multiply__ that number by every integer, starting with 1.

10×1 10×2 10×3 10×4

Example 1: Multiples of 10 are 10, __20__ , __30__ , __40__ , __50__ , __60__ , __70__ ....

- **Common multiples** are numbers that share __two__ or more of the __same__ multiples.

Example 2: multiples of 10: __10__ , __20__ , ㉚ , __40__ , __50__ , �60 ,

        Multiples of 15: __15__ , ㉚ , __45__ , �60 , __75__ , __90__ ,

__30__ and __60__ appear in these lists, so they are __common multiples__ of 10 and 15.

- **Least Common Multiple (LCM)** is the __smallest__ common multiple of two or more numbers.
- From example 2, the LCM of 10 and 15 is __30__
- LCM can be found by listing all the multiples and looking for the __smallest__ common one in the lists.

Example 3: Find the least common multiple of the numbers below.

   a) Multiples of 9: __9__ , __18__ , __27__ , __36__ , ㊺ , __54__

        Multiples of 15: __15__ , __30__ , ㊺ , __60__ , __75__ , __90__

The common multiple is __45__   The LCM is __45__

   b) Multiples of 20: __20__ , __40__ , �60 , __80__ , __100__ , ⑫0

        Multiples of 30: __30__ , �60 , __90__ , ⑫0 , __150__ , __180__

The common multiple is __60,120__   The LCM is __60__

   c) Multiples of 10: __10__ , __20__ , __30__ , __40__ , __50__ , __60__ , 70,80,90,⑩0

        Multiples of 20: __20__ , __40__ , __60__ , __80__ , ⑩0 , __120__

        Multiples of 50: __50__ , ⑩0 , __150__ , __200__ , __250__ , __300__

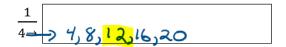The common multiple is __100__   The LCM is __100__

LOWEST COMMON DENOMINATOR

- To add or subtract fractions with **different** denominators we have to convert them so they have the ___Same___ or ___Common___ denominator.

1) Finding the **Lowest Common Denominator (LCD),**.
   a. Find the ___multiples___ by listing the multiples for each **denominator**.

$\frac{1}{3} = $ | → 3, 6, 9, 12, 15

$\frac{1}{4} = $ → 4, 8, 12, 16, 20

   b. Your LCM is __12__
   c. Convert your fraction to its **equivalent** by multiplying your ___numerator___ (top) and ___denominator___ (bottom) by the same number using the lowest common denominator.

$\frac{1}{3} \xrightarrow{\times 4} \frac{4}{12}$ ×4 $\frac{1}{4} \xrightarrow{\times 3} \frac{3}{12}$ ×3

   d. Add your equivalent fractions.

$$\frac{4}{12} + \frac{3}{12} = \boxed{\frac{7}{12}}$$

You Try: Find the common denominator for each pair of fractions and convert them.

a) $\frac{1}{2}$ and $\frac{3}{8}$ 2: 2, 4, 6, ⑧
                          8: ⑧
                          LCM = 8

$\frac{1}{2} \xrightarrow{\times 4} = \frac{4}{8}$ ×4

$\frac{3}{8}$

b) $\frac{7}{11}$ and $\frac{8}{9}$ LCM: 99

$\frac{7}{11} \xrightarrow{\times 9} = \frac{63}{99}$ ×9

$\frac{8}{9} \xrightarrow{\times 11} = \frac{88}{99}$ ×11

c) $\frac{1}{2}$ and $\frac{3}{7}$ LCM: 14

$\frac{1}{2} \xrightarrow{\times 7} = \frac{7}{14}$ ×7

$\frac{3}{7} \xrightarrow{\times 2} = \frac{6}{14}$ ×2

d) $\frac{8}{9}$ and $\frac{1}{2}$ LCM: 18

$\frac{8}{9} \xrightarrow{\times 2} = \frac{16}{18}$ ×2

$\frac{1}{2} \xrightarrow{\times 9} = \frac{9}{18}$ ×9

Assignment: LCM/common denominator worksheet

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- <mark>handin!</mark>
- pick up equivalent fractions colouring sheet

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