

5-7 Least Common Multiple (LCM)

L
↓
smallest

C
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product

multiple - the product of a # and any whole #

*have to multiply to get multiple

Is 1st # a multiple of 2nd?

1) 10; 5 yes 2) 51; 3 yes 3) 100; 8 no 4) 24; 7 no

In elem. school :

5: 5 10 15 20 25
10: 10 20 30 40 50

LCM = 10

USE BOBSLED!

5	5	10
	1	2

$$\text{LCM} = 5 \cdot 1 \cdot 2 = \boxed{10}$$

To find LCM:

1) \div by smallest prime #

2) when stop, make "L" and multiply #s

$$\begin{array}{r|rr}
 1) & 2 & 14 & 98 \\
 & 7 & 7 & 49 \\
 & & 1 & 7
 \end{array}$$

$$\text{LCM} = 2 \cdot 7 \cdot 1 \cdot 7 = \boxed{98}$$

$\swarrow \quad \searrow$
 $14 \cdot 7$

* always \checkmark to see if smaller # goes into larger, if it does then larger # is LCM

$$\begin{array}{r}
 7 \\
 14 \overline{) 98} \\
 \underline{-98} \\
 0
 \end{array}$$

LCM = $\boxed{98}$

$$2) \begin{array}{r} 2 \overline{) 4 \ 6} \\ \underline{2 \ 3} \end{array}$$

$$\text{LCM} = 2 \cdot 2 \cdot 3 = \boxed{12}$$

$$3) \begin{array}{r} \overline{3 \ 5 \ 7} \end{array}$$

$$\text{LCM} = 3 \cdot 5 \cdot 7 = \boxed{105}$$

$\begin{array}{c} \sqrt{3 \cdot 5} \\ 15 \end{array} \cdot 7$

*when can't \div by anything, mult. all #'s

$$4) \begin{array}{r|rrr} 3 & 3 & 7 & 15 \\ \hline & 1 & 7 & 5 \end{array}$$

$$\text{LCM} = 3 \cdot 1 \cdot 7 \cdot 5 = \boxed{105}$$

$$\quad \quad \quad \vee \quad \quad \vee$$

$$\quad \quad \quad 3 \cdot 35$$

HUGE NOTE:

When have 3 #s in bobble, the # you divide by only has to go evenly into 2 of the #s !!

$$5) \begin{array}{r|rrr} 2 & 4 & 6 & 9 \\ \hline 3 & 2 & 3 & 9 \\ \hline & 2 & 1 & 3 \end{array}$$

$$\text{LCM} = 2 \cdot 3 \cdot 2 \cdot 1 \cdot 3 = \boxed{36}$$

$$\quad \quad \quad \vee \quad \quad \vee$$

$$\quad \quad \quad 6 \cdot 6$$

b)

5	15	25	75
3	3	5	15
5	1	5	5
	1	1	1

$$\text{LCM} = 5 \cdot 3 \cdot 5 \cdot 1 \cdot 1 \cdot 1 = \boxed{75}$$

$\swarrow \searrow$
 $15 \cdot 5$

