GCF

When Comparing 2 or More Numbers....

GCF - Greatest Common Factor

Is the largest COMMON number that will divide into each

- you can list the factors or use prime factorization trees

Prime Factorization

Ex) GCF (6,12) =

6

12

12=

Underline the common primes (then multiply them and that give you the GCF)

LCM

When Comparing 2 or More Numbers....

LCM - Lowest Common Multiple

Is the largest COMMON multiple

- you can list the multiples of each numer and circle the common multiple that fall en all list Prime Factorization

or

use prime factorization trees

- use maximum # of primes in each list

WATCH The video for description

https://www.khanacademy.org/math/algebra2/rational-expressions-equations-and-functions/adding-and-subtracting-rational-expressions/v/least-common-multiple-exercise

Prime Factorization

Ex) GCF (18,12) = ?

18 12

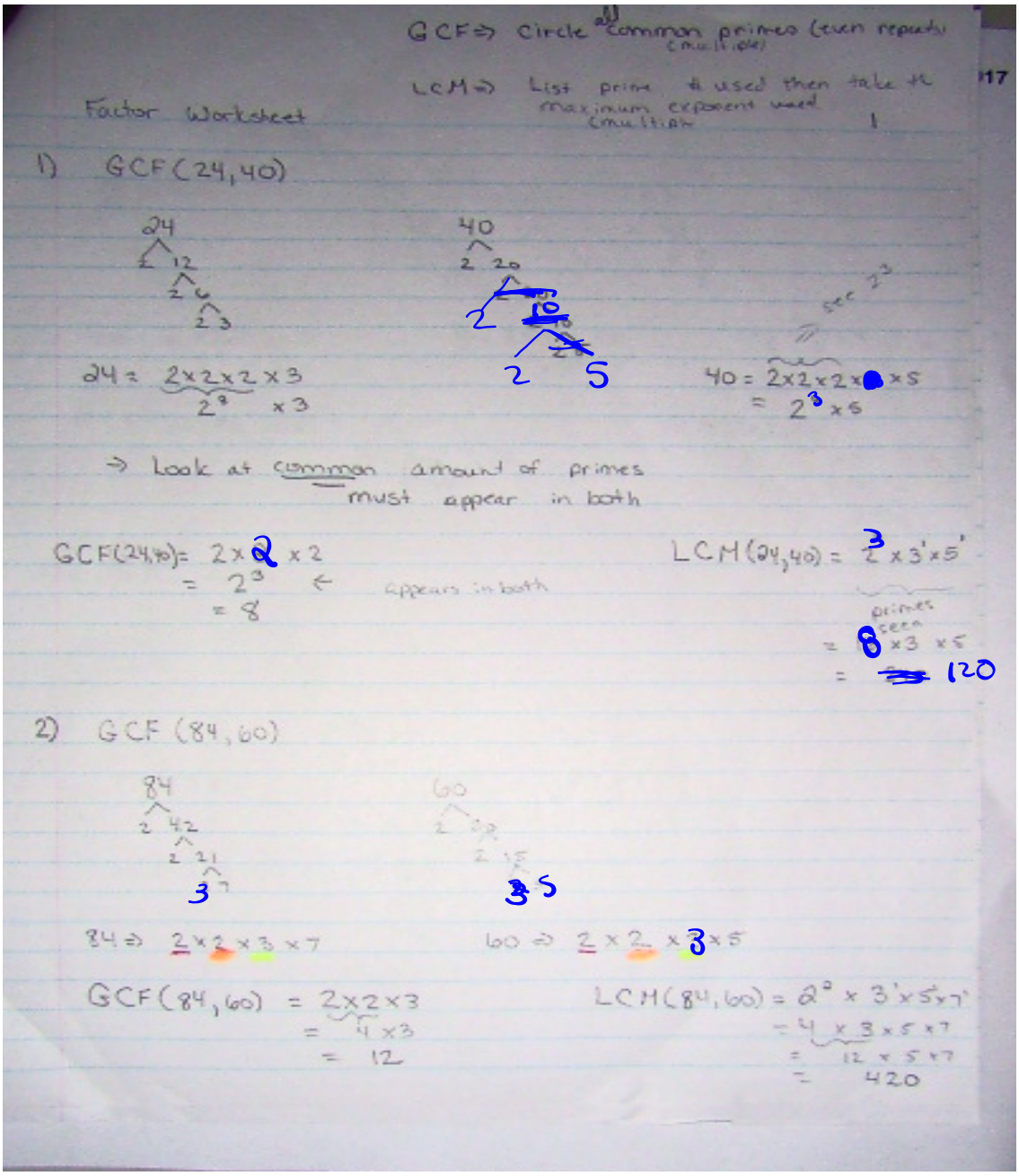
Both have so take largest power of each

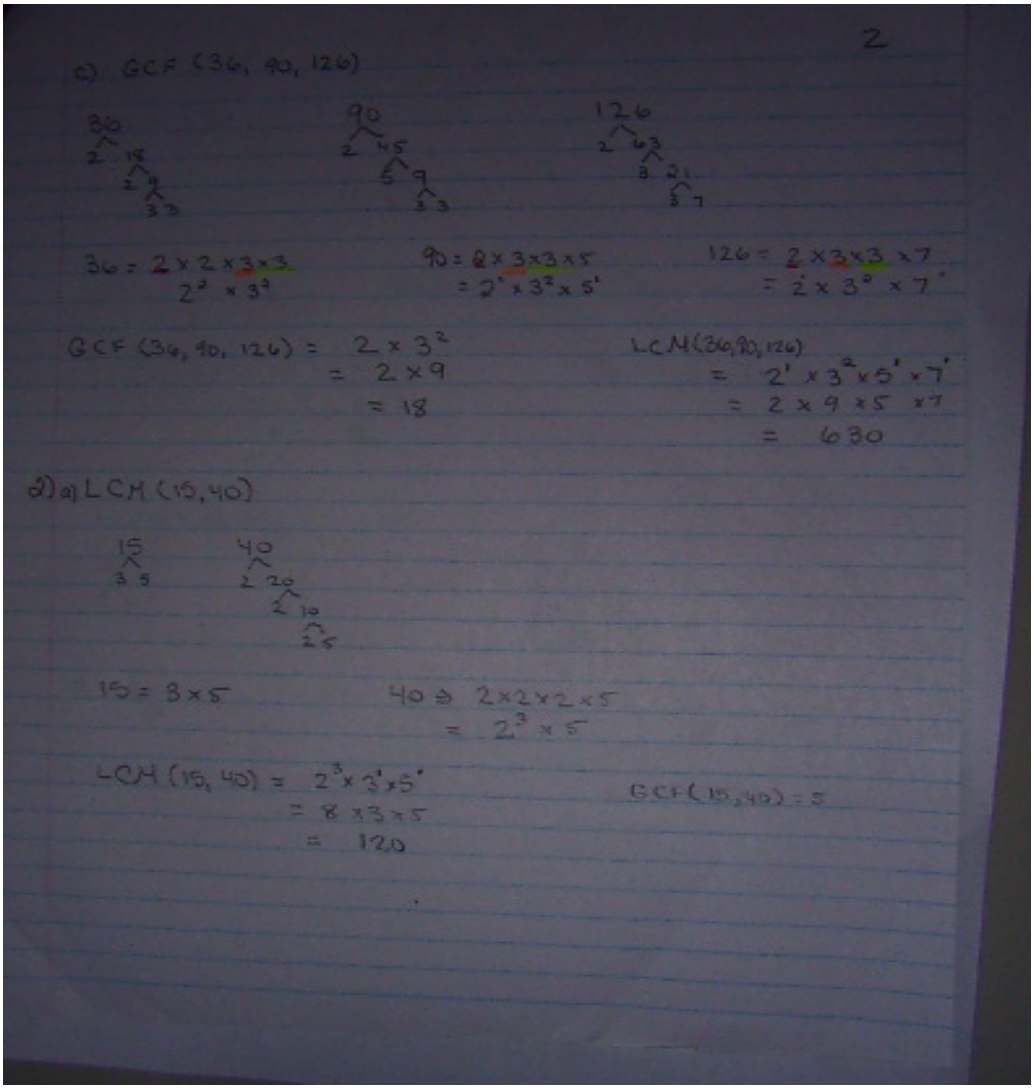
1)) Find the

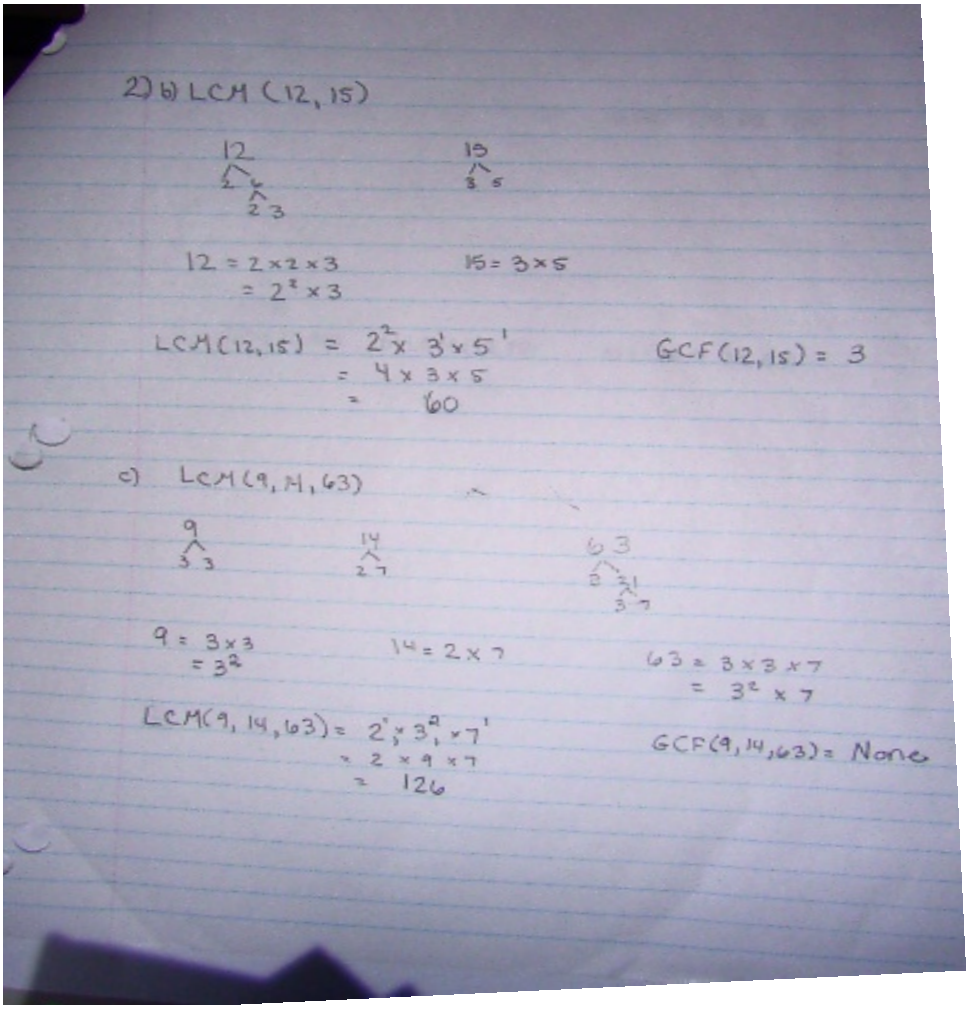
a) GCF (24, 40) b) GCF (84, 60) c) GCF (36, 90, 126)

1)) Find the

a) LCM (15,40) b) LCM (12,15) c) LCM (9, 14, 63)


GCF ⇒ Circle all common primes (even repeats)
LCM ⇒ List prime # used then take the maximum exponent used
Factor Worksheet
1) GCF(24,40)
24 = 2x2x2x3
40 = 2x2x2x5
GCF(24,40) = 2x2x2
= 8
LCM(24,40) = 2³x3¹x5¹
= 8x3x5
= 120
2) GCF(84,60)
84 ⇒ 2x2x3x7
60 ⇒ 2x2x3x5
GCF(84,60) = 2x2x3
= 12
LCM(84,60) = 2²x3¹x5¹x7¹
= 4x3x5x7
= 12x5x7
= 420

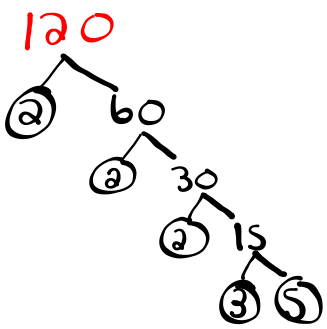

2
c) GCF (36, 90, 126)
36 = 2 x 2 x 3 x 3
2² x 3²
90 = 2 x 3 x 3 x 5
= 2¹ x 3² x 5¹
126 = 2 x 3 x 3 x 7
= 2¹ x 3² x 7¹
GCF (36, 90, 126) = 2 x 3²
= 2 x 9
= 18
LCM (36, 90, 126)
= 2¹ x 3² x 5¹ x 7¹
= 2 x 9 x 5 x 7
= 630
d) a) LCM (15, 40)
15 = 3 x 5
40 = 2 x 2 x 2 x 5
= 2³ x 5¹
LCM (15, 40) = 2³ x 3¹ x 5¹
= 8 x 3 x 5
= 120
GCF (15, 40) = 5


2) b) LCM (12, 15)
12
2 6
2 3
15
3 5
12 = 2 × 2 × 3
= 2² × 3
15 = 3 × 5
LCM(12,15) = 2² × 3¹ × 5¹
= 4 × 3 × 5
= 60
GCF(12,15) = 3
c) LCM(9, 14, 63)
9
3 3
14
2 7
63
3 21
3 7
9 = 3 × 3
= 3²
14 = 2 × 7
63 = 3 × 3 × 7
= 3² × 7
LCM(9, 14, 63) = 2¹ × 3² × 7¹
= 2 × 9 × 7
= 126
GCF(9,14,63) = None

Warm Up

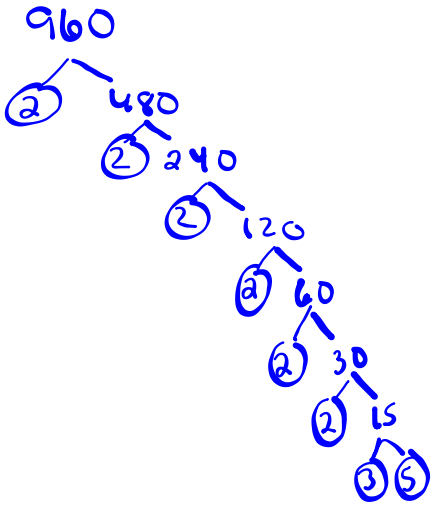
Sept. 28, 2017

Find the GCF (120, 960, 1400)



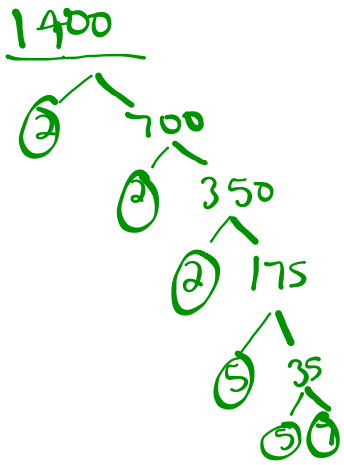
$120 = 2 \times 2 \times 2 \times 3 \times 5$

$= 2^3 \times 3^1 \times 5^1$



$960 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5$

$2^6 \times 3 \times 5$



$1400 = 2 \times 2 \times 2 \times 5 \times 5 \times 7$

$= 2^3 \times 5^2 \times 7$

GCF (120, 960, 1400)

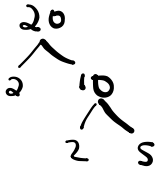
$= 2^3 \times 5$

$= 8 \times 5$

$= 40$

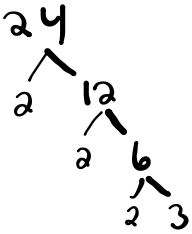
Find the LCM (15, 20, 24, 27)

$15 = 3 \times 5^1$



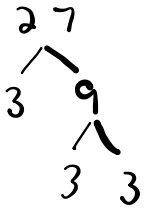
$20 = 2 \times 2 \times 5$

$= 2^2 \times 5^1$



$24 = 2 \times 2 \times 2 \times 3$

$= 2^3 \times 3$



$27 = 3 \times 3 \times 3$

$= 3^3$

GCF (15, 20, 24, 27] = None

LCM (15, 20, 24, 27] $= 2^3 \times 3^3 \times 5^1$

$= 8 \times 27 \times 5$

$= 1080$

Video On GCF & LCM

https://www.youtube.com/watch?v=NFHEH2rzSJo

18
24

GCF
16 24

LCM
18→
24→

GCF:

Box/Ladder Method

	18	24
2	9	12
3	3	4

GCF = 2 × 3 = 6

LCM = 2 × 3 × 3 × 4
= 72

Homework

Exercises page 140

A

3 4 5

a, b, c

, b, c

B

Box → Ladder factor tree

6 7 8 9 10 11 12 13

a, c, a,c a,c,e

14 15 16 17 18 20

a,d a,

C

21 22

4 abc
5 bc
6 ac
8 ab
9 ac
10 ace
15 ad
16 4