

Pre-Algebra
Factors, Fractions, and Exponents
Example 1

Factors, GCF, LCM

Write all the factors of the following numbers:

1. 8

1, 2, 4, 8

2. 24

1, 2, 3, 4, 6, 8, 12, 24

3. 72

1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

4. 7

1, 7

Tell whether the number is prime or composite. If the number is composite write its prime factorization.

1. 36

COMPOSITE



2 · 2 · 3 · 3

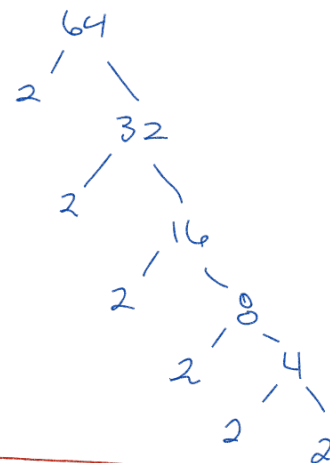
2. 17

PRIME

1 · 17

3. 64

COMPOSITE



2 · 2 · 2 · 2 · 2 · 2

4. 94

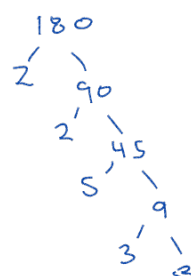
COMPOSITE



2 · 47

5. 180

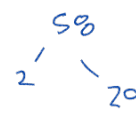
COMPOSITE



2 · 2 · 5 · 3 · 3

6. 58

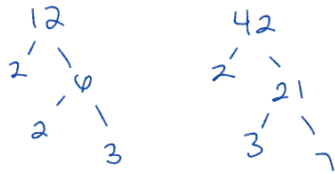
COMPOSITE



2 · 29

Find the greatest common factor (GCF) of the following number combinations:

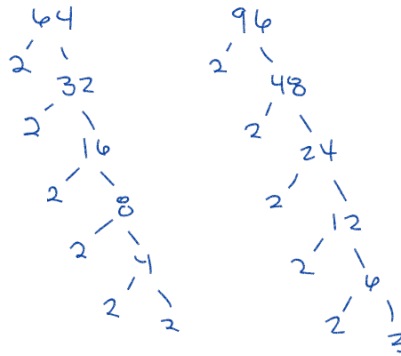
1. 12, 42



$$2 \cdot 3 = 6$$

$$\boxed{\text{GCF} = 6}$$

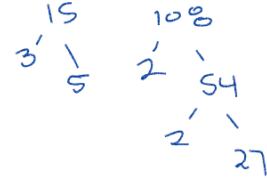
2. 64, 96



$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$$

$$\boxed{\text{GCF} = 32}$$

3. 15, 108



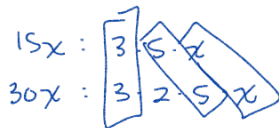
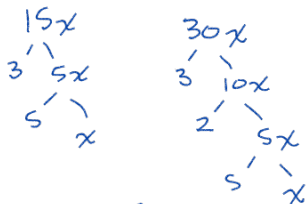
$$15: 3 \cdot 5$$

$$108: 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$$

NO MATCHES

$$\therefore \boxed{\text{GCF} = 1}$$

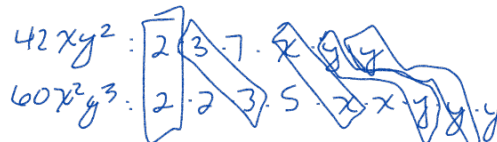
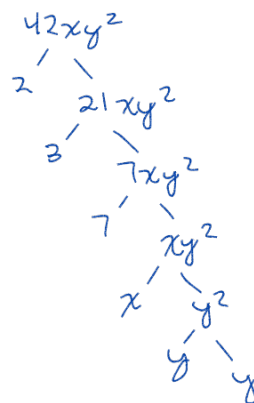
4. $15x$, $30x$



$$3 \cdot 5 \cdot x = 15x$$

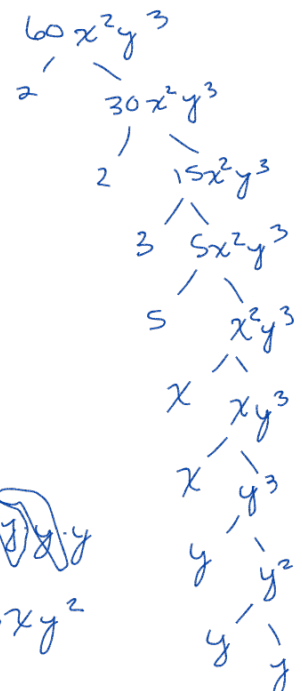
$$\boxed{\text{GCF} = 15x}$$

5. $42xy^2$, $60x^2y^3$



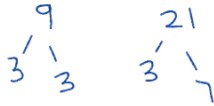
$$2 \cdot 3 \cdot x \cdot y \cdot y = 6xy^2$$

$$\boxed{\text{GCF} = 6xy^2}$$



Find the least common multiple (LCM) of the following:

1. 9, 21



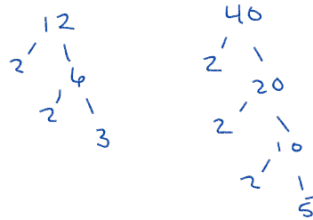
$$9: \boxed{3} \cdot 3$$

$$21: \boxed{3} \cdot 7$$

$$3 \cdot 3 \cdot 7 = 63$$

$$\boxed{\text{LCM} = 63}$$

2. 12, 40



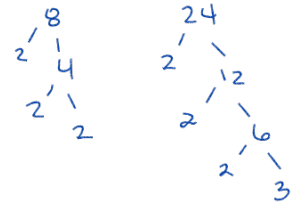
$$12: \boxed{2} \cdot \boxed{2} \cdot 3$$

$$40: \boxed{2} \cdot \boxed{2} \cdot 2 \cdot 5$$

$$2 \cdot 2 \cdot 3 \cdot 2 \cdot 5 = 120$$

$$\boxed{\text{LCM} = 120}$$

3. 8, 24



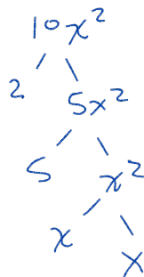
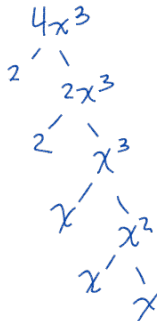
$$8: \boxed{2} \cdot \boxed{2} \cdot \boxed{2}$$

$$24: \boxed{2} \cdot \boxed{2} \cdot \boxed{2} \cdot 3$$

$$2 \cdot 2 \cdot 2 \cdot 3 = 24$$

$$\boxed{\text{LCM} = 24}$$

4. $4x^3$, $10x^2$



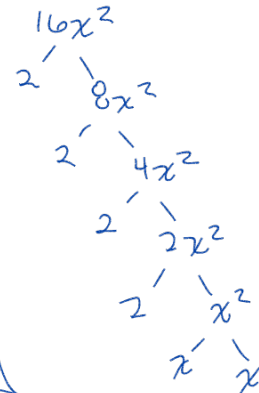
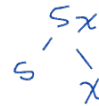
$$4x^3: \boxed{2} \cdot \boxed{2} \cdot \boxed{x} \cdot \boxed{x} \cdot x$$

$$10x^2: \boxed{2} \cdot 5 \cdot \boxed{x} \cdot \boxed{x}$$

$$2 \cdot x \cdot x \cdot 2 \cdot 5 \cdot x = 20x^3$$

$$\boxed{\text{LCM} = 20x^3}$$

5. $5x$, $16x^2$



$$5x: 5 \cdot \boxed{x}$$

$$16x^2: 2 \cdot 2 \cdot 2 \cdot 2 \cdot \boxed{x} \cdot x$$

$$x \cdot 5 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot x = 80x^2$$

$$\boxed{\text{LCM} = 80x^2}$$