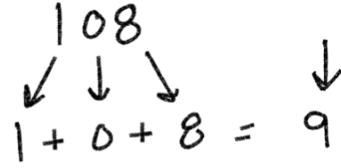
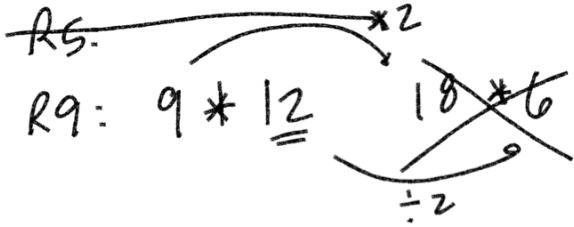
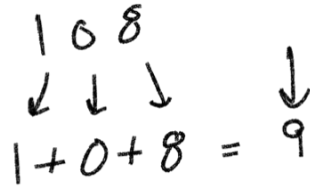
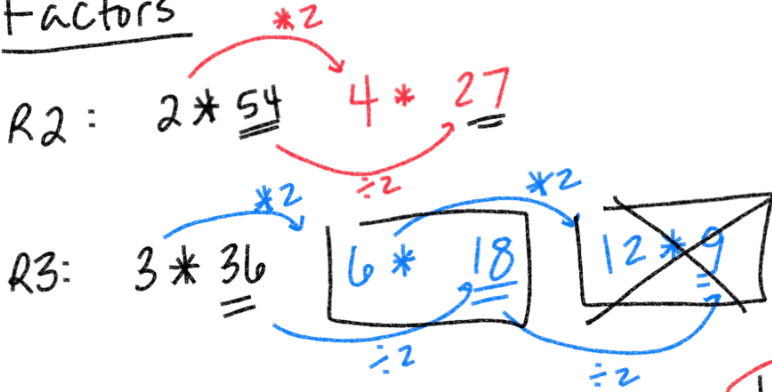


108

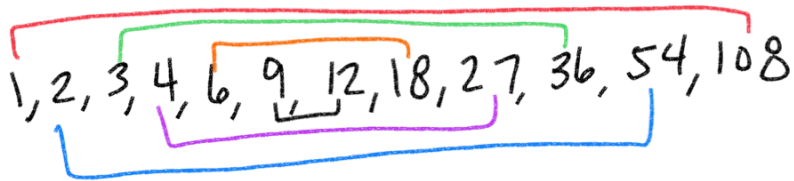


Factors



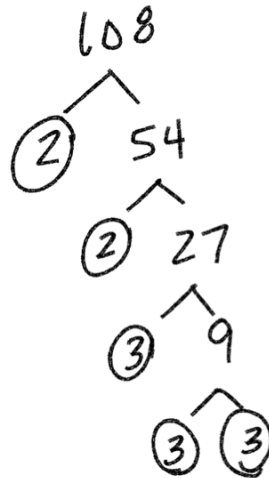
- 1 * 108
- 2 * 54
- 3 * 36
- 4 * 27
- 6 * 18
- 9 * 12

10:



Prime Factorization

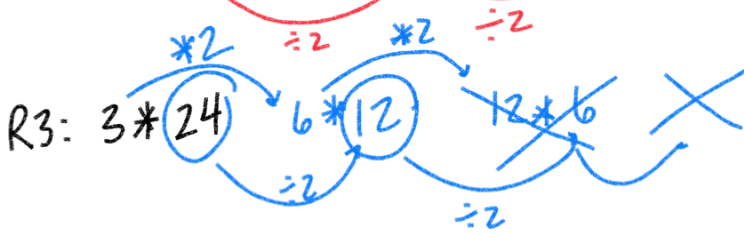
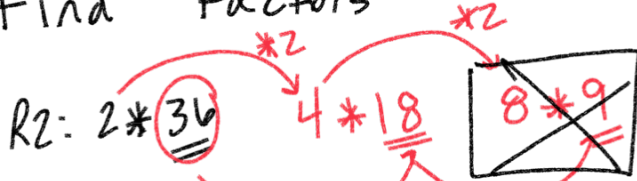
108: $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3$
 $2^2 \cdot 3^3$



72

$7+2=9$

Find factors



R5: _____

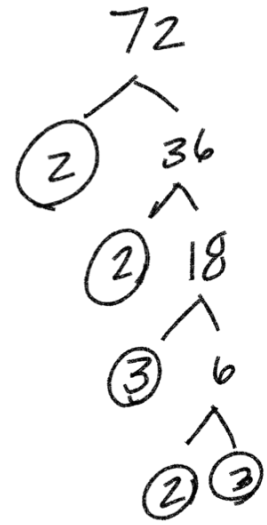
R9: $9 * 8$

R10: _____

- $1 * 72$ $6 * 12$
- $2 * 36$ $8 * 9$
- $3 * 24$
- $4 * 18$

$72 = 3 \cdot 3 \cdot 2 \cdot 2 \cdot 2$

$3^2 \cdot 2^3$



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

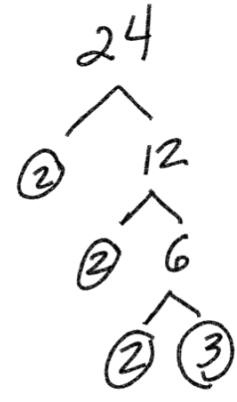
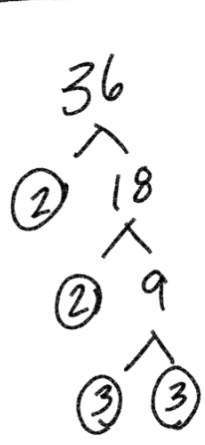
GCF

Greatest Common Factor

36, 24

$36 = 3 \cdot 3 \cdot 2 \cdot 2$

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



$GCF = 3 \cdot 2 \cdot 2 = 12$

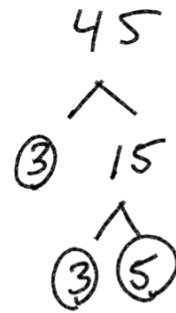
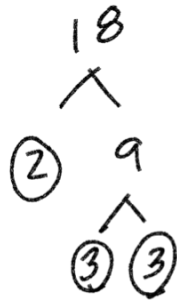
Reduce: $\frac{36}{24} = \frac{\cancel{3} \cdot 3 \cdot \cancel{2} \cdot \cancel{2}}{\cancel{3} \cdot \cancel{2} \cdot \cancel{2} \cdot 2} = \frac{3}{2}$

Find GCF 18, 45

$$18: 3 \cdot 3 \cdot 2$$

$$45: 5 \cdot 3 \cdot 3$$

$$\text{GCF: } 3 \cdot 3 = \boxed{9}$$



Reduce
Kill

$$\frac{18}{45} = \frac{\cancel{3} \cdot \cancel{3} \cdot 2}{5 \cdot \cancel{3} \cdot \cancel{3}} = \boxed{\frac{2}{5}}$$

LCM Least/Lowest Common Multiple

18, 45

$$\begin{array}{l}
 18: \cancel{3} \cdot \cancel{3} \cdot 2 \\
 45: 5 \cdot \cancel{3} \cdot \cancel{3}
 \end{array}
 = \begin{array}{l}
 2 \\
 45
 \end{array}$$

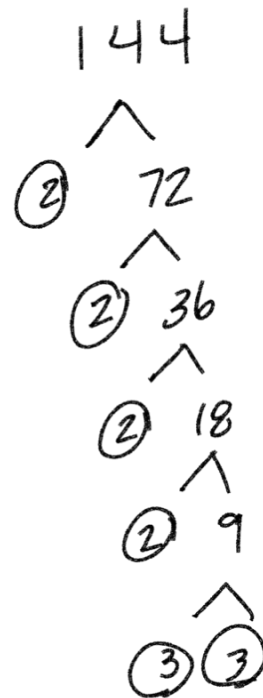
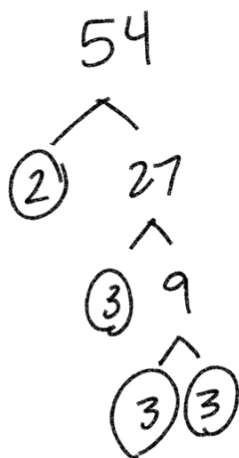
Thanos pair

$$2 * 45 = \boxed{90}$$

1) Prime Factorize

GCF
(pair)

Reduce
(kill pair) $\frac{54}{144}$



LCM
(Thanos pair)

54: $3 \cdot 3 \cdot 3 \cdot 2$
 $3^3 \cdot 2$

144: $3 \cdot 3 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
 $3^2 \cdot 2^4$

GCF

54: $3 \cdot 3 \cdot 3 \cdot 2$
144: $3 \cdot 3 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

Save pair

GCF: $3 \cdot 3 \cdot 2 = 18$

Reduce

$\frac{54}{144} = \frac{3 \cdot 3 \cdot 3 \cdot 2}{3 \cdot 3 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$
kill pair

LCM

$54: 3 \cdot 3 \cdot 3 \cdot 2 = 3$ Thanos pair $\frac{1}{2}$
 $144: 3 \cdot 3 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 144$
 $144 * 3 = 432$

reduce

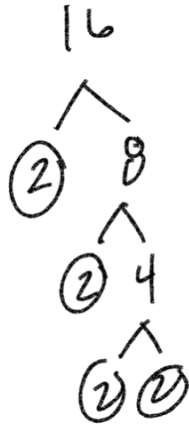
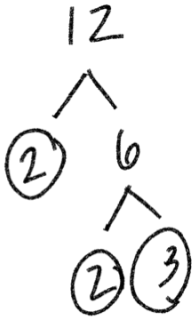
$$\frac{12x^3y^4}{16x^2y^8} =$$

$$x^3 = x \cdot x \cdot x$$

$$y^4 = y \cdot y \cdot y \cdot y$$

Expand

$$\frac{\cancel{3} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y}}{\cancel{2} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y}} = \frac{\cancel{3}x}{4y^4}$$



$$\frac{12x^3y^4}{16x^2y^8} = \frac{x}{y^4}$$

$$\frac{x^{\cancel{3}}}{x^{\cancel{2}}} = x^{3-2} = x^1 = x$$

$$\frac{y^{\cancel{4}}}{y^{\cancel{8}}} = y^{4-8} = y^{-4} = \frac{1}{y^4} \quad \text{negative}$$

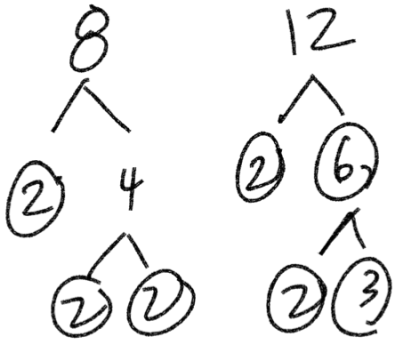
reduce

$$\frac{8x^5y^6}{12x^2y^{11}}$$

$$= \frac{\cancel{2} \cdot \cancel{2} \cdot \cancel{2}}{\cancel{3} \cdot \cancel{2} \cdot \cancel{2}} x^{5-2} y^{6-11}$$

$$\rightarrow \frac{2}{3} x^3 y^{-5}$$

bottom



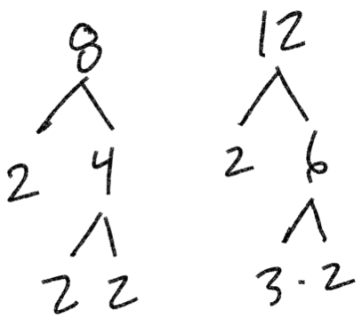
$$\frac{2x^3}{3y^5}$$

GCF

$$8x^5y^6, 12x^2y^{11}$$

GCF

$$x^2y^6$$



$$8: 2 \cdot 2 \cdot 2$$

$$12: 3 \cdot 2 \cdot 2$$

$$\text{GCF} = 2 \cdot 2 = 4$$

GCF

$$4x^2y^6$$

take the smaller exponent