

Divisibility Rules

Rule of 2: If a number ends in 0, 2, 4, 6, 8
it is evenly divisible by 2.

Rule of 5: If a number ends in 0, 5
it is evenly divisible by 5

Rule of 10: If a number ends in 0
it is evenly divisible by 10.

Rule of 3: If the sum of the digits is
evenly divisible by 3, the
number itself is evenly divisible
by 3

$$18$$

$$18 \div 3 = 6 \checkmark$$

$$1 + 8 = 9$$

$$3 \overline{) 9} \checkmark$$

$$372 \checkmark$$

$$3 + 7 + 2$$

$$10 + 2 = 12$$

$$3 \overline{) 372} \checkmark$$

$$87368124$$

$$3 + 9 = 12$$

$$1 + 2 = 3$$

$$\begin{array}{l} \checkmark \downarrow \\ 15 + 3 = 18 + 6 = 24 + 8 = 32 \end{array}$$

$$32 + 1 = 33 + 2 = 35 + 4 = 39$$

$$\begin{array}{r} - 3 \\ 07 \\ - 6 \\ \hline 12 \\ - 12 \\ \hline 0 \end{array}$$

Rule of 9: If the sum of the digits is evenly divisible by 9, the number itself is evenly divisible by 9

361,827

✓

$$9+1=10+8=18$$

$$18+2=20+7=27$$

$$\begin{array}{r} 40203 \\ 9 \overline{) 361827} \\ \underline{-36} \\ 018 \\ \underline{-18} \\ 027 \\ \underline{-27} \\ 0 \end{array}$$

79386 3

16+3=19+8=27+6=33 $\xrightarrow{+3}$ 36

Find factors of 78

$$\begin{array}{r} 39 \\ 2 \overline{)78} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

$$\begin{array}{r} 26 \\ 3 \overline{)78} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

$7+8=15$

$$\begin{array}{r} 13 \\ 6 \overline{)78} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

R2: $2 * 39$

R3: $3 * 26$

~~R5:~~ no

~~R9:~~ no

~~R10:~~

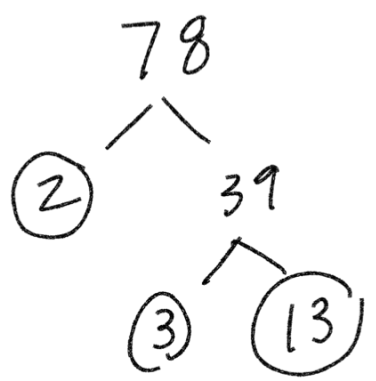
$6 * 13$
 $1 * 78$

- $1 * 78$
- $2 * 39$
- $3 * 26$
- $6 * 13$

Factors of 78

- 1, 2, 3, 6, 13, 26, 39, 78

Prime Factorization



Prime number

Numbers that have no other factors other than 1 and itself
 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, ...

Prime factorization of 78:

$2 * 3 * 13$

48

Find factors and Prime Factorization

R2: 2*24 4*12 8*6 ~~16*3~~

R3: 3*16 ~~6*8~~

R5: _____

1, 2, 3, 4, 6, 8, 12, 16, 24, 48

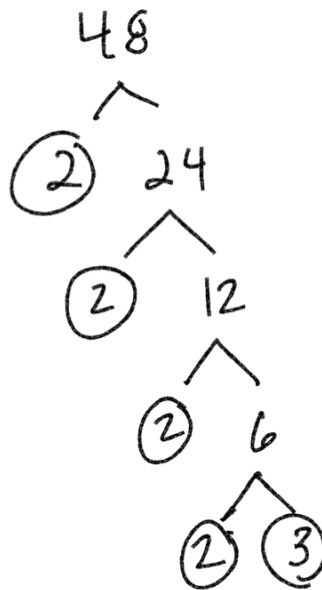
R9: _____

R10: _____

48: 3 * 2*2*2*2

power $3 * 2^4$
base $\underline{2}^4 = 2 * 2 * 2 * 2$

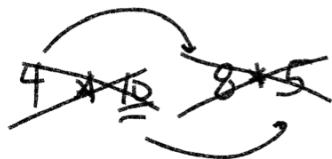
Prime Factorization



Factors of 40

Prime factorization

R2: 2*20



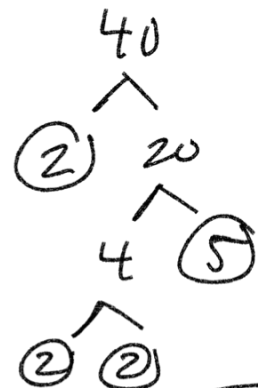
R3: _____

R5: 5*8

1, 2, 4, 5, 8, 10, 20, 40

R9: _____

R10: 10*4



40: 5 * 2 * 2 * 2 = 5 * 2³

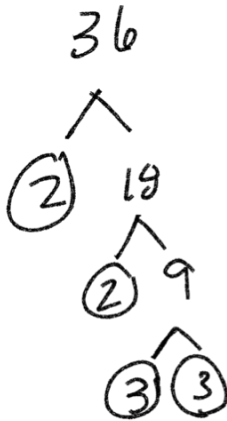
GCF

36, 24

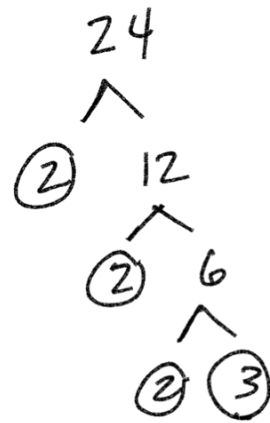
$$36: 3 \cdot 3 \cdot 2 \cdot 2$$
$$24: 3 \cdot 2 \cdot 2 \cdot 2$$

$$\text{GCF: } 3 \cdot 2 \cdot 2 = \boxed{12}$$

Greatest



Common Factor

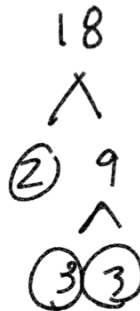


GCF

18, 45

$$18: 3 \cdot 3 \cdot 2$$
$$45: 5 \cdot 3 \cdot 3$$

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



$$\frac{18}{45} = \frac{2}{5}$$