

Polynomials

Prime Number - is a number that has 2 factors: itself and 1.

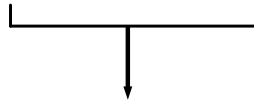
ex. 2, 3, 5, 7, 11, etc

Factor - is a number that divides "cleanly into another number"
"cleanly" means it divides with no remainder

ex. $16 \div 8 = 2$ vs $16 \div 5 = 3$ R1
 $3 \frac{1}{5}$

Prime Factor - a prime number that is a factor of a number

ex. factors of 12: 1, 2, 3, 4, 6, 12

$$12 = 2 \times 2 \times 3$$


Prime Factorization - writing a number as a product of prime factors.

Ex 1: Write the prime factorization of 2646.

Method 1:

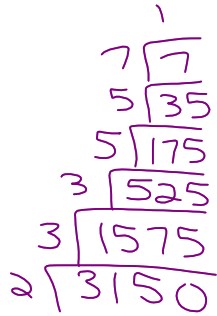
Use Repeated Division - use for large numbers

$$\begin{array}{r} 7 \overline{) 7} \\ 7 \overline{) 49} \\ 3 \overline{) 147} \\ 3 \overline{) 441} \\ 3 \overline{) 1323} \\ 2 \overline{) 2646} \end{array}$$

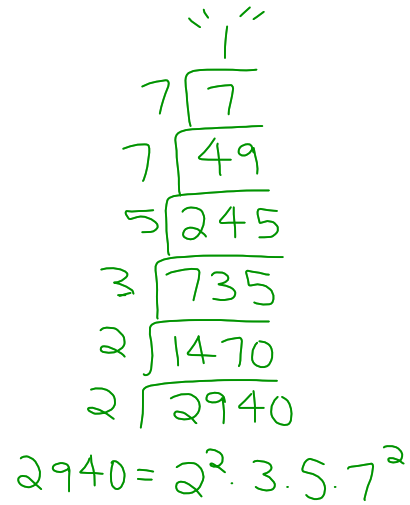
$$\begin{aligned} 2646 &= 2 \cdot 3 \cdot 3 \cdot 3 \cdot 7 \cdot 7 \\ &= 2 \cdot 3^3 \cdot 7^2 \end{aligned}$$

ex) find the PF of 3150

$$3150 = 2 \cdot 3^2 \cdot 5^2 \cdot 7$$



ex) 2940

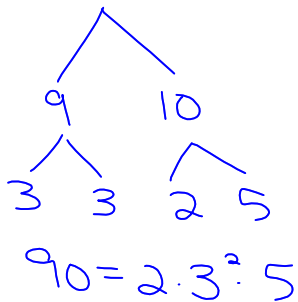


Method 2:

Factor Trees

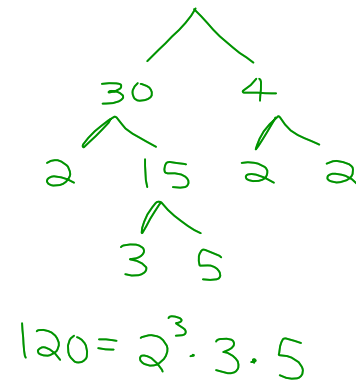
Best for small numbers - very fast

ex) PF of 90 without calculator



yellow ws #1+2

ex) PF of 120



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100