

# Important to know Factors and Multiples

Order of Operations  
M D A S  
P E  
( )  
↑ ↓  
↑ ↓  
↑ ↓

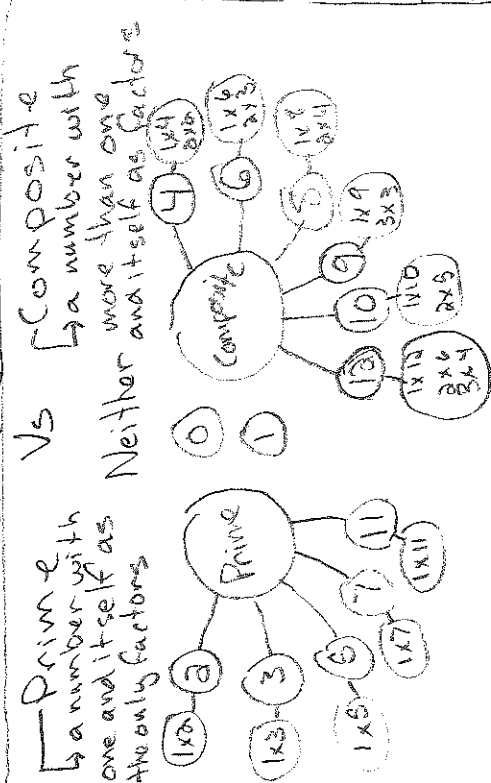
example:  
 $(3 \times 2) + 4 = X$   
 $6 + 4 = X$   
 $10 = X$   
 $20 - (3 \times 2) = X$   
 $20 - 6 = X$   
 $14 = X$

Problem Solving  
 Dante collected 16 YuGi Oh cards each day for 20 days.  
 Aaron collected 21 YuGi Oh cards each day for 18 days.  
 How many more cards did Aaron collect than Dante?  
 Cards collected by Dante:  $16 \times 20 = 320$   
 Cards collected by Aaron:  $21 \times 18 = 378$   
 Draw a bar model to compare.  
 378 Cards: Aaron  
 320 Cards: Dante  
 Subtract:  $378 - 320 = 58$   
 So, Aaron had 58 more cards than Dante.  
 $58 = X$  ← variable (unknown)

Multiplication Methods  
 • lattice = traditional  
 • place value  
 $20 \times 30 = 20 \times 3 \text{ tens} = 60 \text{ tens} = 600$   
 $20 \times 30 = 600$   
 • associative property  
 $20 \times 30 = 20 \times (3 \times 10) = (20 \times 3) \times 10 = 60 \times 10 = 600$

STANDARDS + MATHEMATICAL PRACTICES  
 • We will solve multistep word problems using the unknown (variable) and explain our thinking using viable arguments and critique each others reasoning.  
 • We will generate number patterns that follow a rule using factors and multiples that express regularity in repeated reasoning.

Factors  
 → a number multiplied by another number to find a product  
 Looks Like:  
 $4: 1, 2, 4$   
 $1 \times 4 = 4$   
 $2 \times 2 = 4$   
 Strategies:  
 \* Factor Tree  
 $12: 1, 2, 3, 4, 6, 12$   
 $1 \times 12$   
 $2 \times 6$   
 $3 \times 4$   
 \* Rainbow  
 $10: 1, 2, 5, 10$



Multiples  
 → a product of two factors  
 Looks Like:  
 $6: 6, 12, 18, 24, \dots$   
 $7: 7, 14, 21, 28, \dots$   
 Common Multiples  
 $2: 2, 4, 6, 8, 10, 12, \dots$   
 $3: 3, 6, 9, 12, 15, \dots$   
 A common multiple of 2 and 3 is 12.  
 $4: 4, 8, 12, 16, 20, 24, \dots$   
 $5: 5, 10, 15, 20, 25, \dots$   
 A common multiple of 4 and 5 is 20.  
 Are there more??

Factor Table

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

→ written least to greatest; each factor one time

We know: Inquiring we want to know: Factors/Multiples