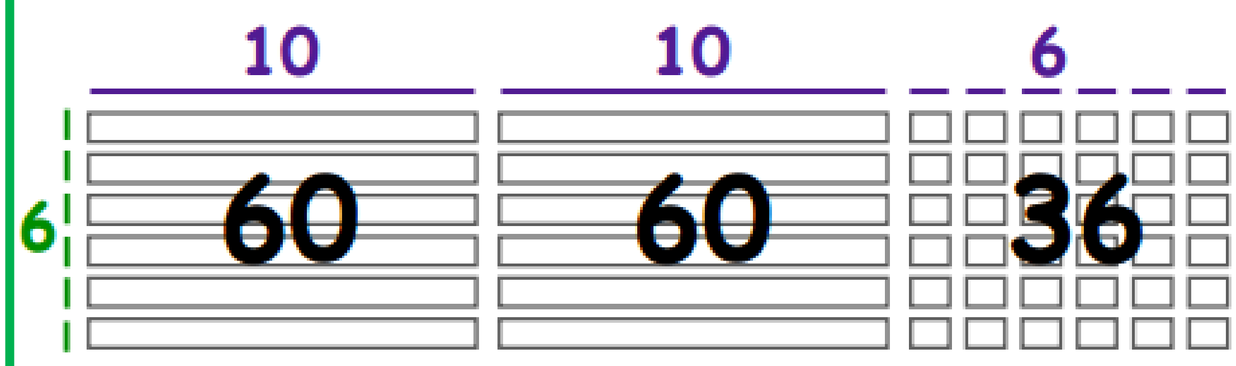
Multiplication Strategies

Build an Array with Base Ten Pieces

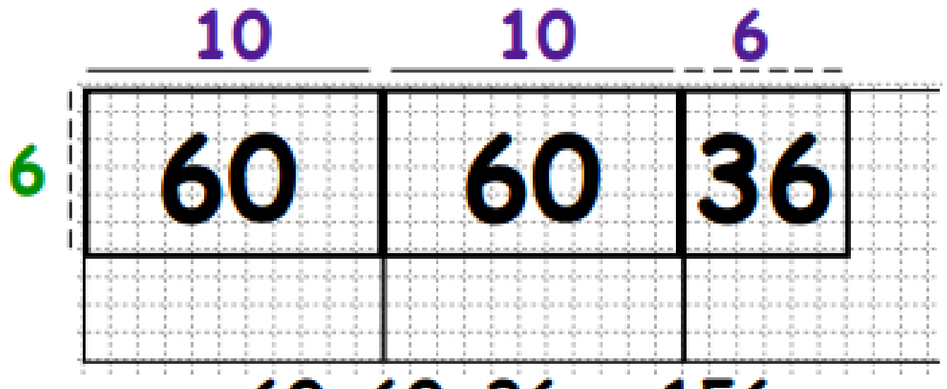
26x6



60+60+36 = 156

Build an Array with Grid Paper

26x6



60+60+36 = 156

Distributive Property (Break Apart Numbers)

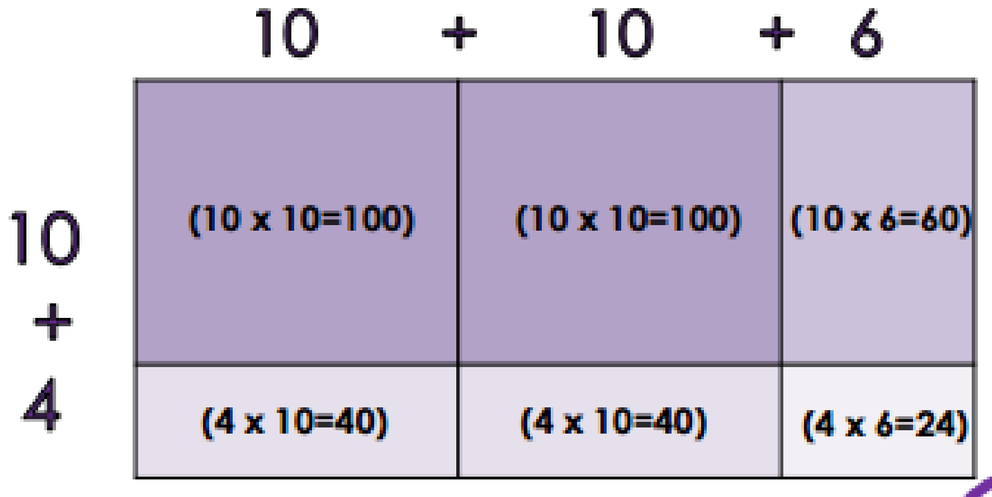
3 x 18 = ?

(3 x 10) + (3 x 8)

30 + 24 = 54

Area Model

14 x 26 = ?



100 + 100+ 60 + 40 + 40 + 24 = 364

Partial Products

42 x 53 = ?

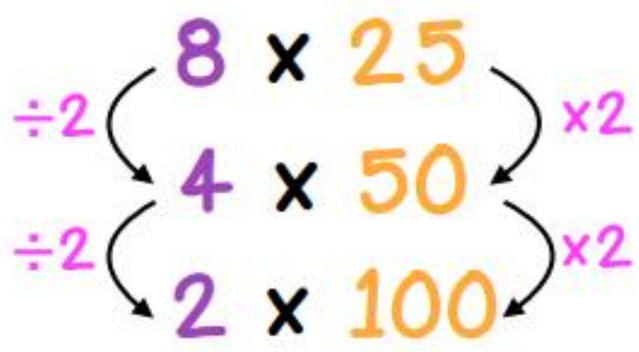
42
x 53

50 X 40 = 2000
50 X 2 = 100
3 X 40 = 120
3 X 2 = 6

2 226

Doubling & Halving

Multiply one number by 2. Divide the other number by 2. Keep going until you reach friendlier numbers.



2 x 100 = 200

Division Strategies

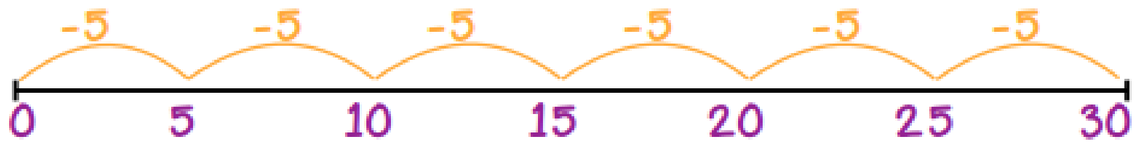
Repeated Subtraction

Think of the divisor as groups and remove the groups from the whole until there are zero.

$30 \div 5$

$30 - 5 - 5 - 5 - 5 - 5 - 5 = 0$

5 is subtracted 6 times



$30 \div 5 = 6$

Multiplying Up

Start with the divisor and then multiply up to the dividend using facts you already know.

$384 \div 16$

$10 \times 16 = 160$
$10 \times 16 = 160$ } 320
$2 \times 16 = 32$
$2 \times 16 = 32$ } 64

384

$10 + 10 + 2 + 2 = 24$

Partial Quotients

Work your way toward the quotient by using friendly multipliers such as tens, fives, and twos.

962		
600	x100	
362		
120	x 20	
242		
240	x 40	
2	160 R 2	

962		
600	x100	
362		
180	x 30	
182		
180	x 30	
2	160 R 2	

Proportional Reasoning

Divide both numbers by the same amount to create an easier problem.

$384 \div 16$

$\div 2$ → $192 \div 8$ → $\div 2$

$\div 2$ → $96 \div 4$ → $\div 2$

$\div 2$ → $48 \div 2$

$= 24$

Addition Strategies

Decomposing Strategy

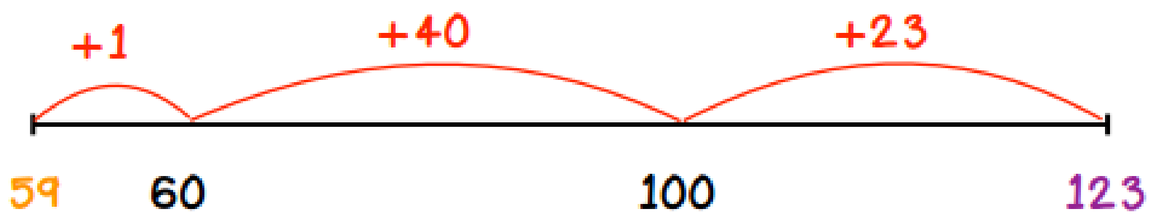
345 + 623 = ?

345 = 300 + 40 + 5
623 = 600 + 20 + 3
---
900 + 60 + 8 = 968

Adding Up

Start on a number line with one of the numbers being added and add the other number in easy-to work with chunks.

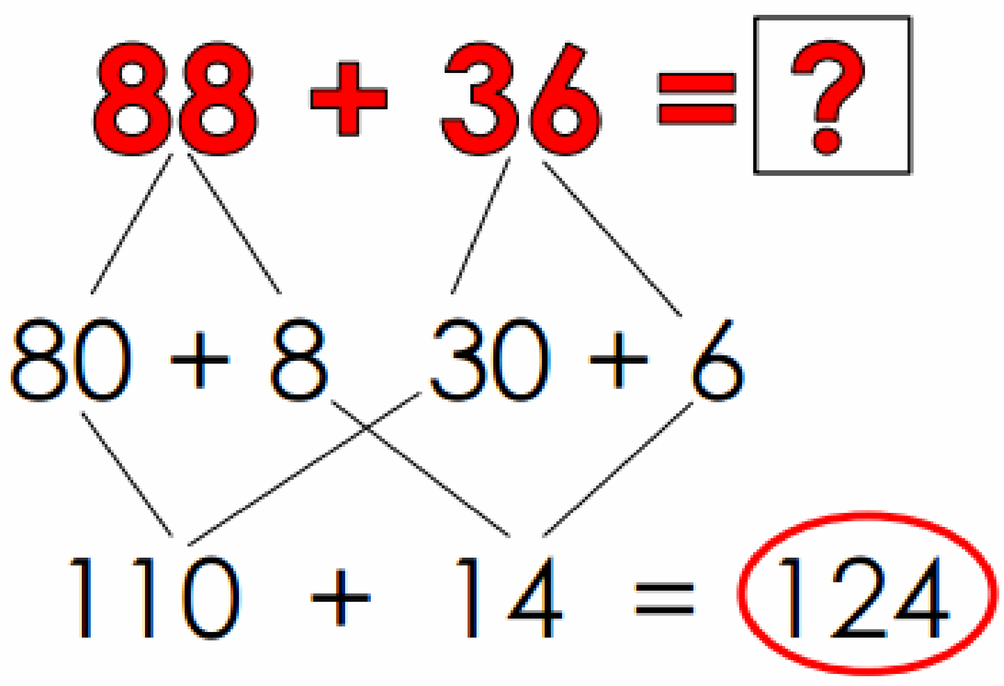
59 + 64 =



59 + 1 + 40 + 23 = 123

Branching Strategy

88 + 36 = ?



Friendly Numbers

Adjust the numbers so they are easier to add.

116 + 118
+ 2
---
116 + 120 = 236

Don't forget to re-adjust for the 2 you added!

236 - 2 = 234

Partial Sums Strategy

64 + 27 = ?

64		64	
+27		+27	
60 + 20 =	80	4 + 7 =	11
4 + 7 =	+11	60 + 20 =	+80
	91		91

- or -

Compensation

Take a specific amount away from one number and add that exact amount to the other to make friendlier numbers.

116 + 118
- 2 + 2
---
114 + 120 = 234

Subtraction Strategies

Decomposing Strategy

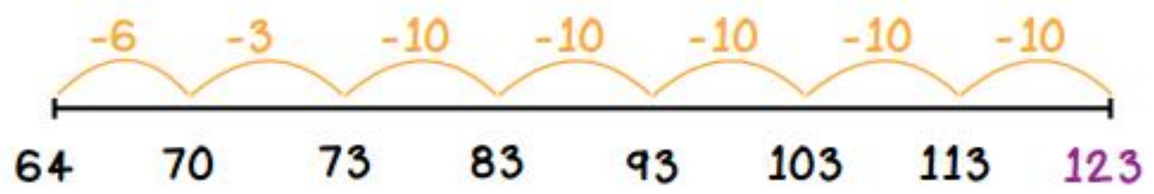
647 – 234 = ?

647 = 600 + 40 + 7
-234 = -200 + 30 + 4
---
400 + 10 + 3 = **413**

Removal / Counting Back

Start with the whole (the minuend), and then remove parts in easy-to-use chunks to get to the number being subtracted (the subtrahend).

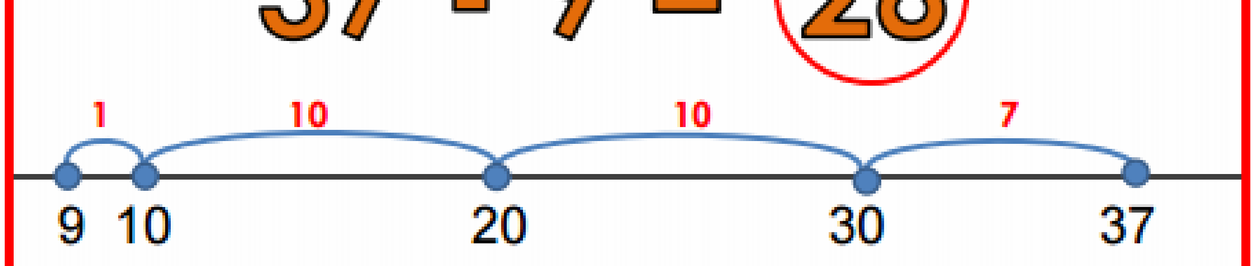
minuend → 123 - 59 ← subtrahend



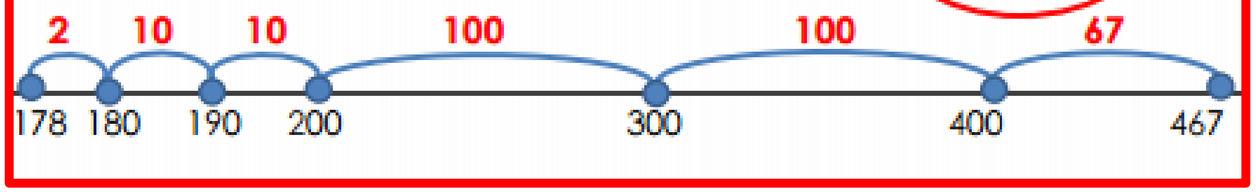
123-10-10-10-10-10-3-6 = 64
(59)

Open Number Line

37 - 9 = 28



467 - 178 = 289



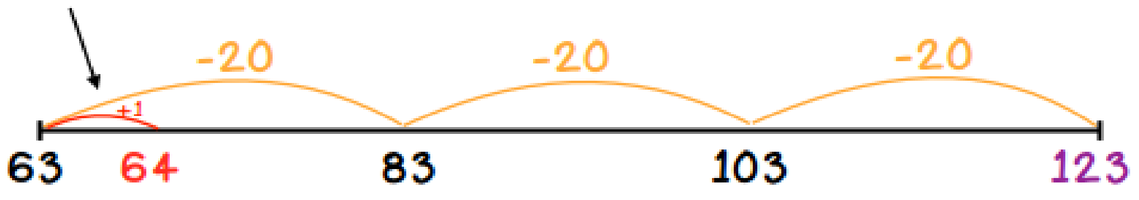
Adjust One Number

Adjust one number to make the problem easier to subtract.

123 - 59
+ 1
---
123 - 60 = 63

You made the difference bigger by adding 1. Remember to re-adjust at the end!

63 + 1 = 64



Zero Zapper

300-138 = ?

300 – 1 = 299
- 138 – 1 = -137

162

Keeping a Constant Difference

Add or subtract the same amount from both numbers to make the problem friendlier. This keeps the difference constant and does not change the answer.

123 - 59
+1 +1
---
124 - 60 = 64