KC1: Key Concepts!

Addition

+

8 + 2 = 10

"What is 8 add 2?"
Answer: 10

Subtraction

−

8 - 2 = 6

"What is 8 subtract 2?"
Answer: 6

"The difference between 8 and 2 is 6"

KC2: Key Concepts!

Multiplication

×

8 x 2 = 16

"8 multiplied by 2" means
"8, 2 times" or
"2 groups of 8"

Division

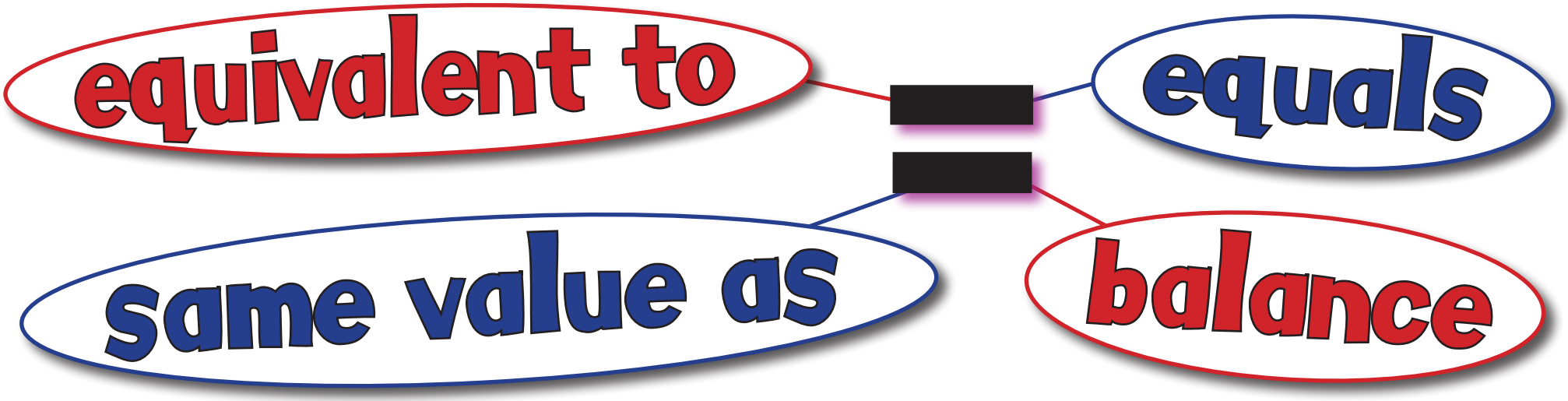
÷

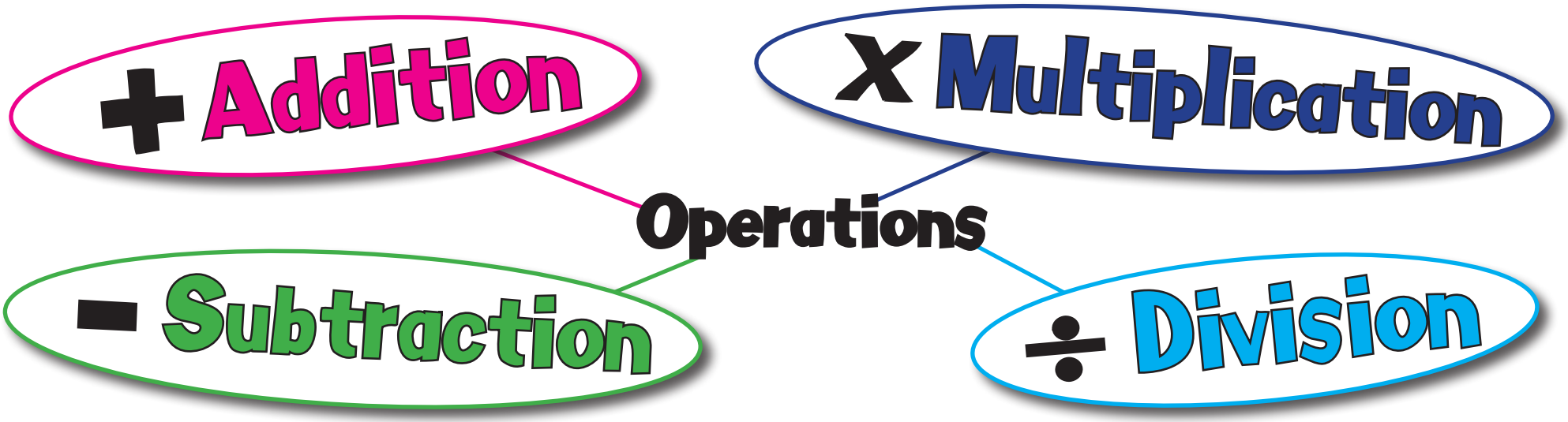
8 ÷ 2 = 4

"8 divided by 2" means "How many groups of 2 are there in 8?" Answer: 4

("8 shared into 2 sets is 4")

Calculation Vocabulary





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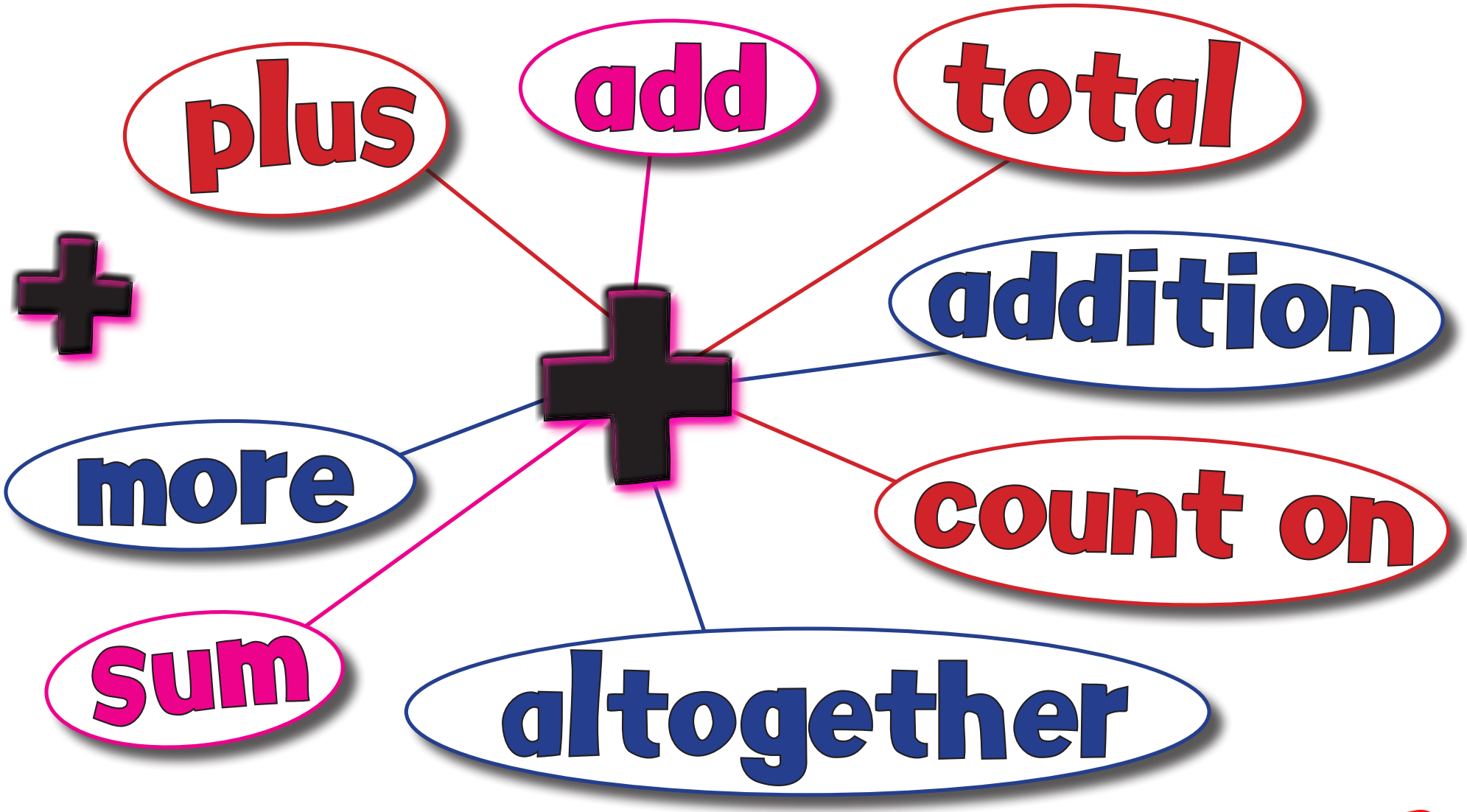
1

Can I do this in my head?

2

Do I need to use a drawing or a jotting?

Addition Vocabulary



Addition Calculation

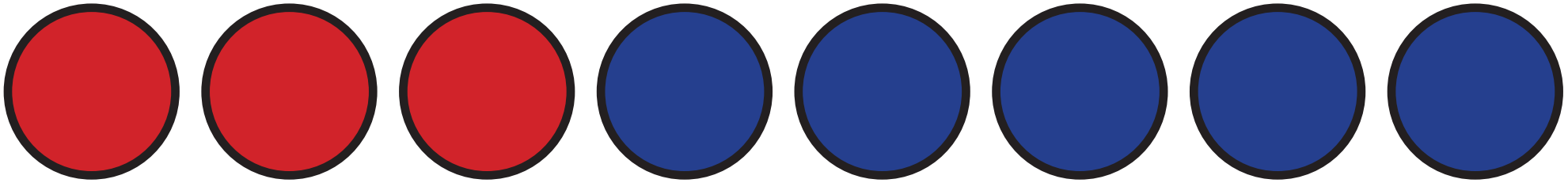
$4 + 2 = 6$

(add) (equals or same as)

$6 = 4 + 2$

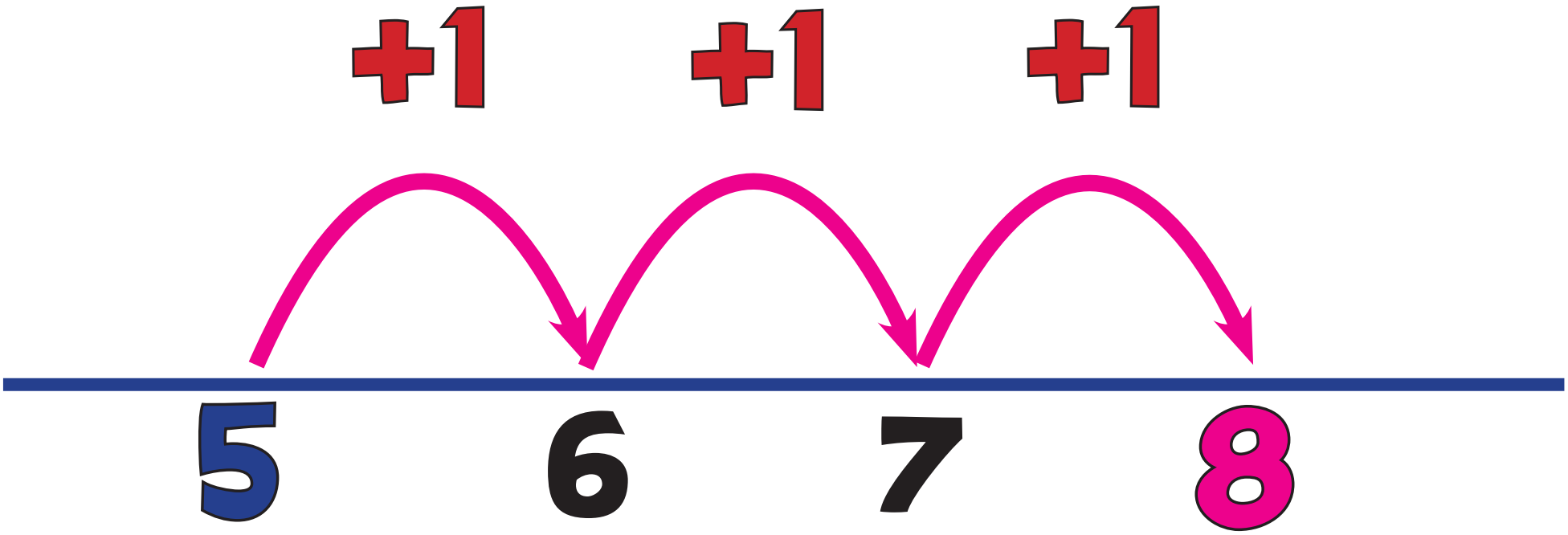
$4 + 2 = 5 + 1$

A1: Objects & Pictures



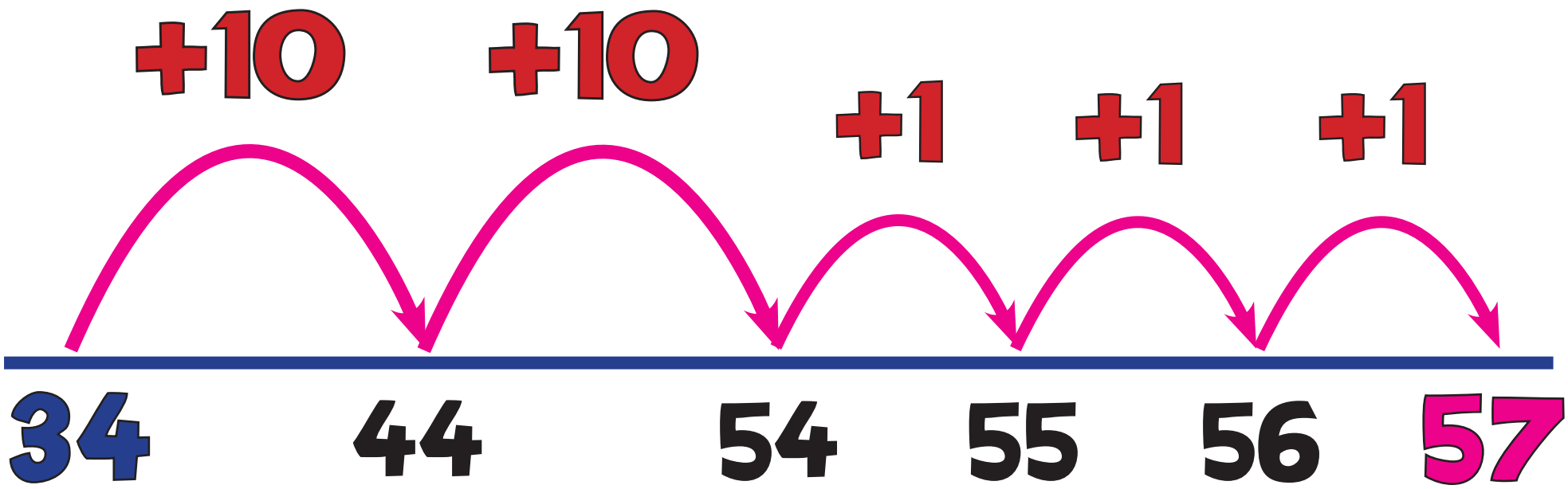
"If I have 3 and then 5 more, how many altogether? Answer: 8"

A2: Counting On



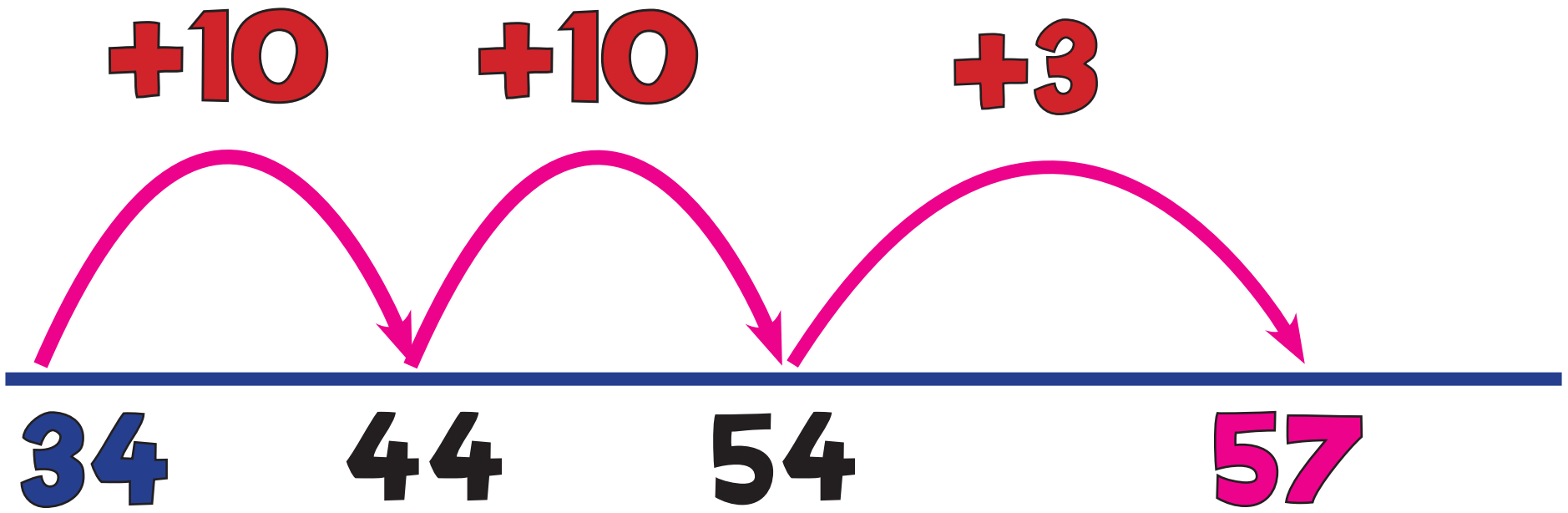
$$5 + 3 = 8$$

A3: Forwards Bounce



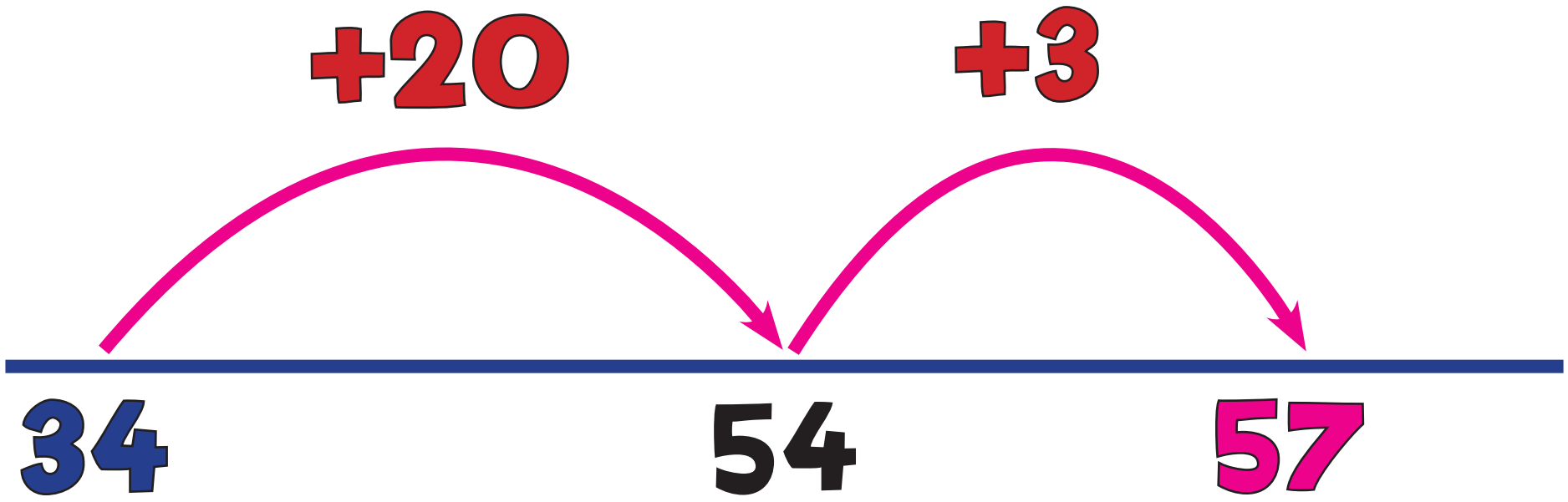
34 + 23 = 57

A4: Forwards Jump



34 + 23 = 57

A5: Forwards Jump



34 + 23 = 57

A6: Partitioning

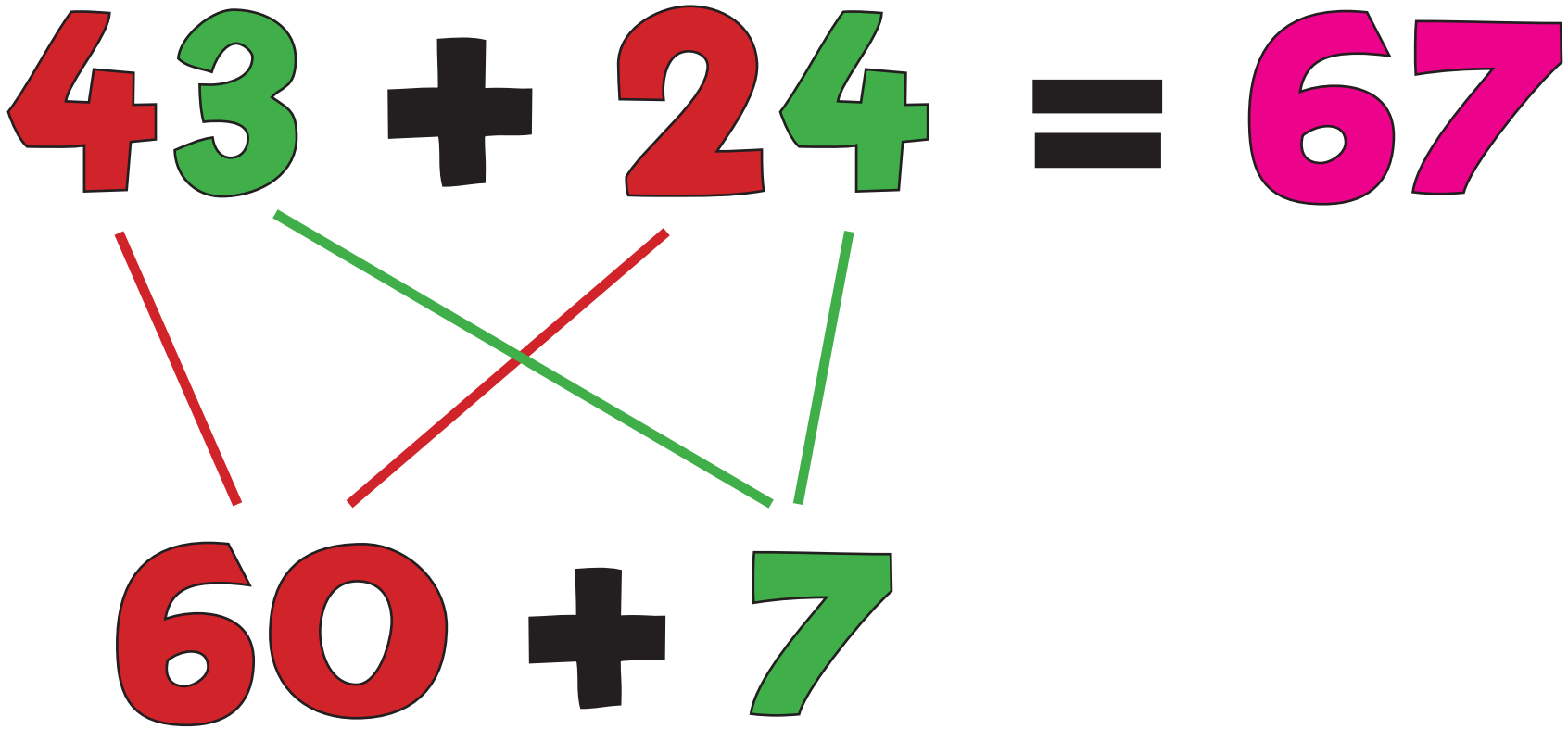
$$43 + 24 = 67$$

$$40 + 20 = 60$$

$$3 + 4 = 7$$

$$60 + 7 = 67$$

A7: Partition Jot



A8: Column Addition

100	10	1	
	7	8	
+	4	6	
	1	4	(8 + 6)
1	1	0	(70 + 40)
1	2	4	

A9: Expanded Column Addition

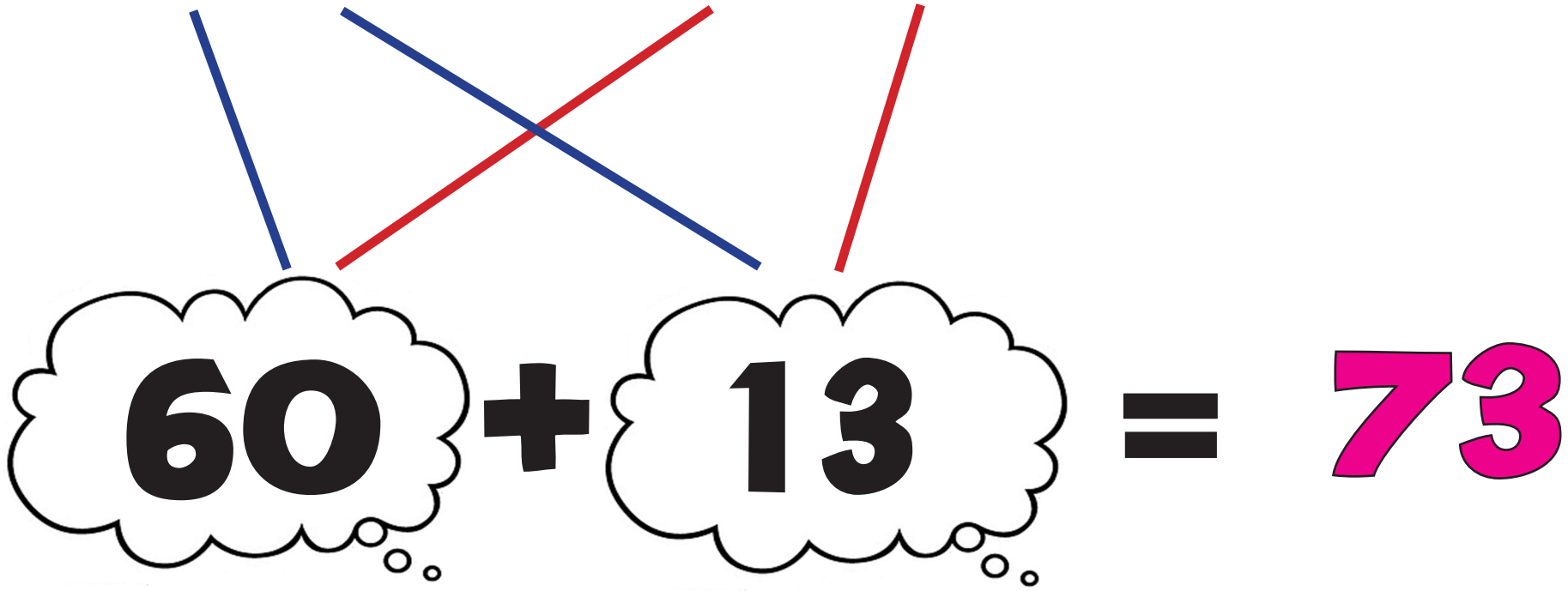
	100	10	1	
	6	8	7	
+	2	4	8	
			15	(7 + 8)
		120		(80 + 40)
	800			(600 + 200)
	9	3	5	

A10: Column Addition

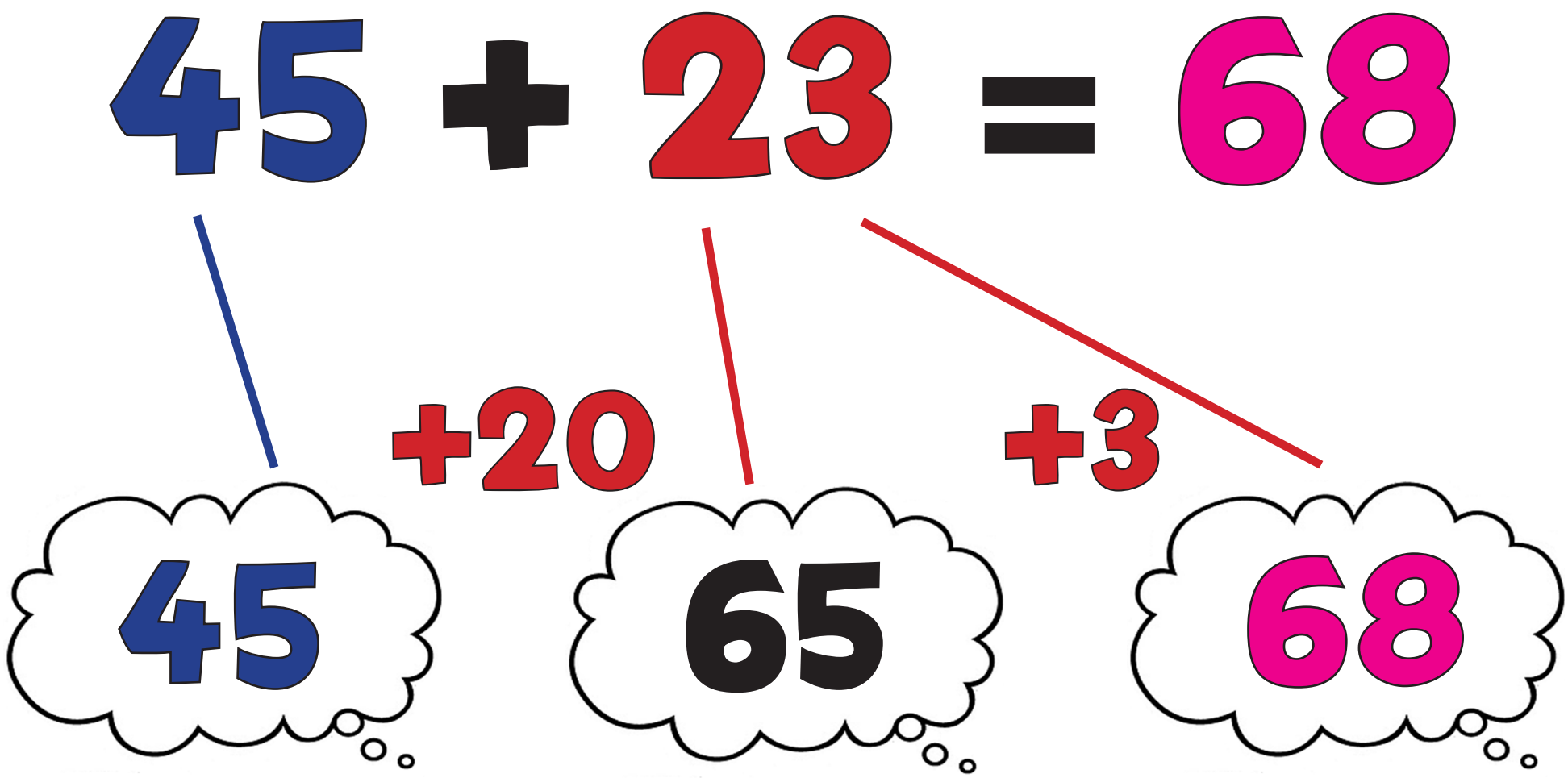
100	10	1
6	8	7
+ 2	4	8
9	3	5
1	1	

MA1: Partitioning

45 + 28 = 73

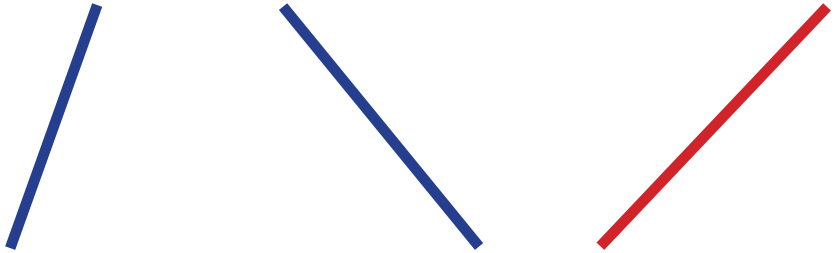


MA2: Counting On



MA3: Number Bonds

45 + 95 = 140



40 + 100 = 140

MA4: Double & Adjust

45 + 46 = 91

45 + 45 + 1

90 + 1 = 91

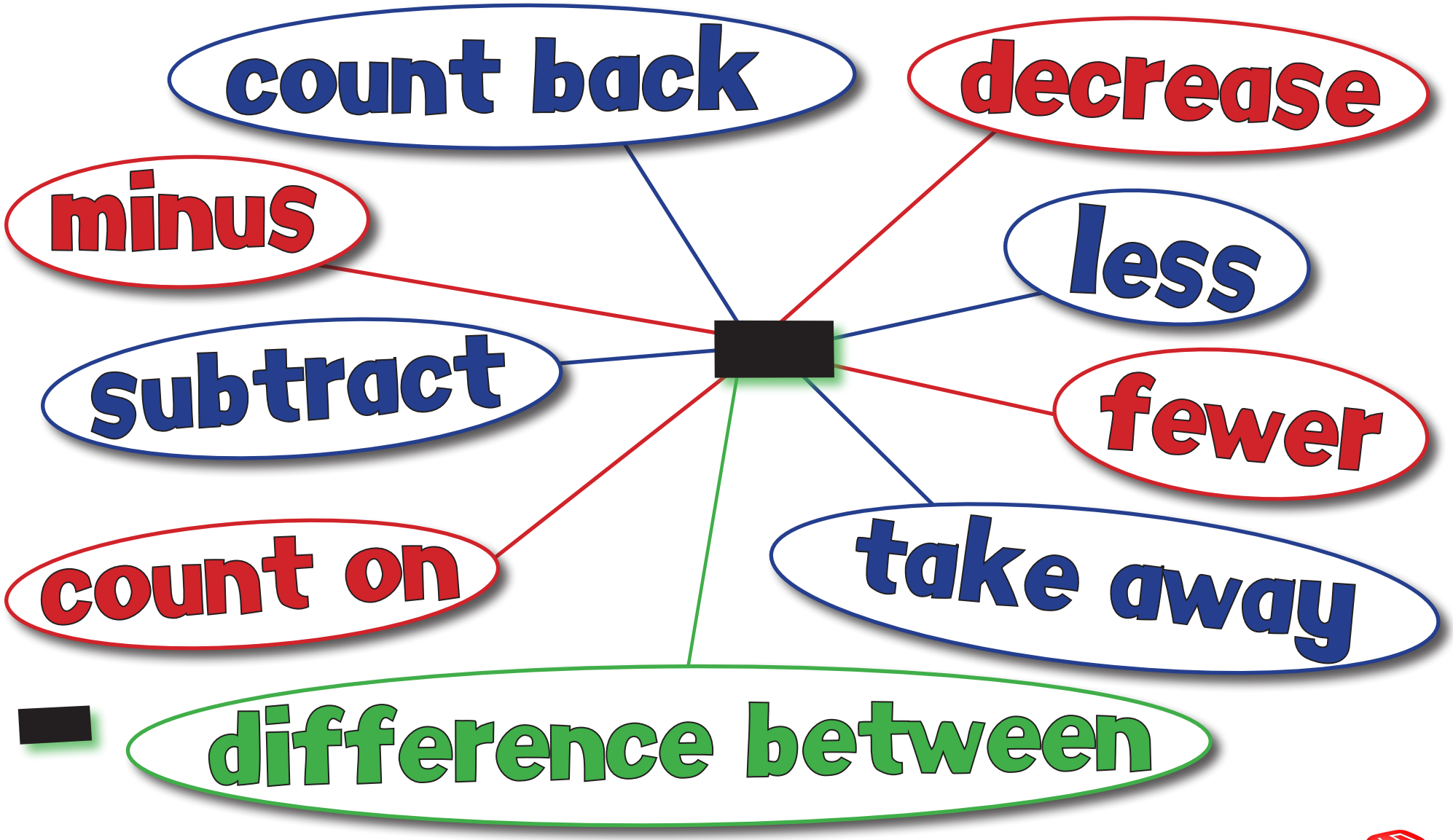
MA5: Round & Adjust

45 + 39 = 84

45 + 40 - 1

85 - 1 = 84

Subtraction Vocabulary



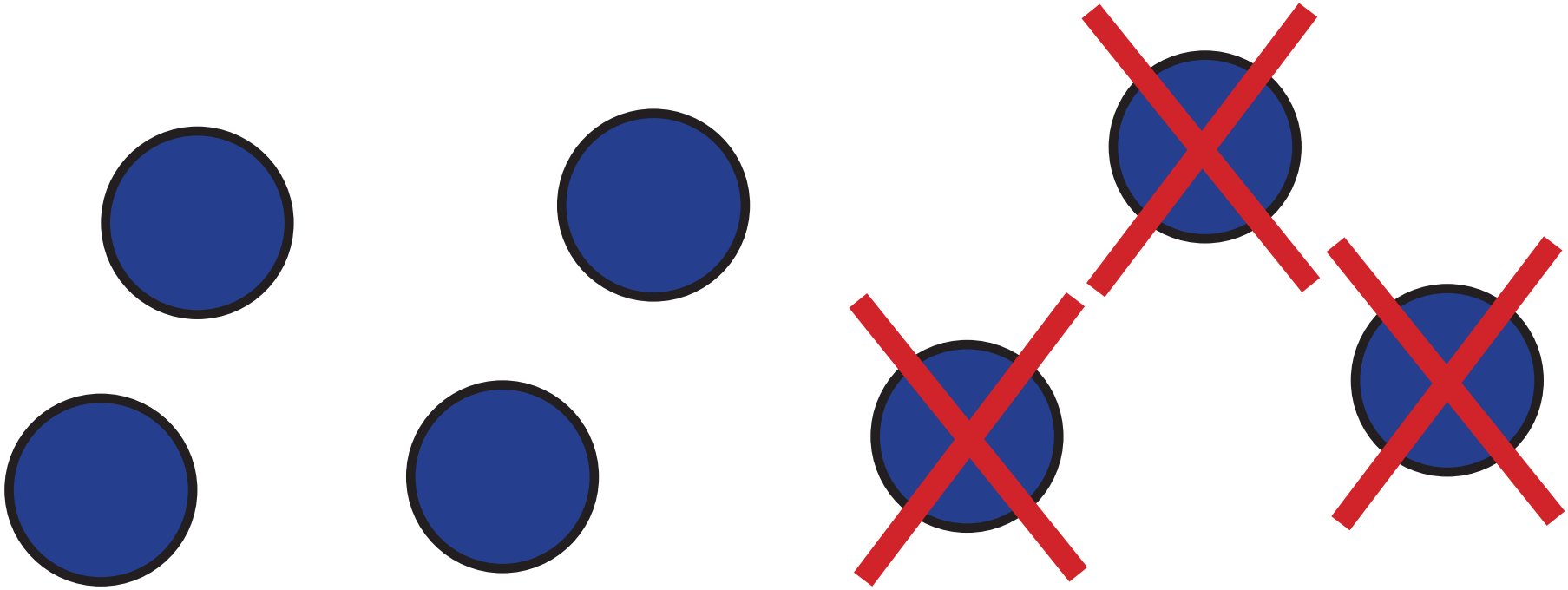
Subtraction Calculation

$$6 - 2 = 4$$

(subtract) (equals or same as)

$$\square - 4 = 6 - 2$$

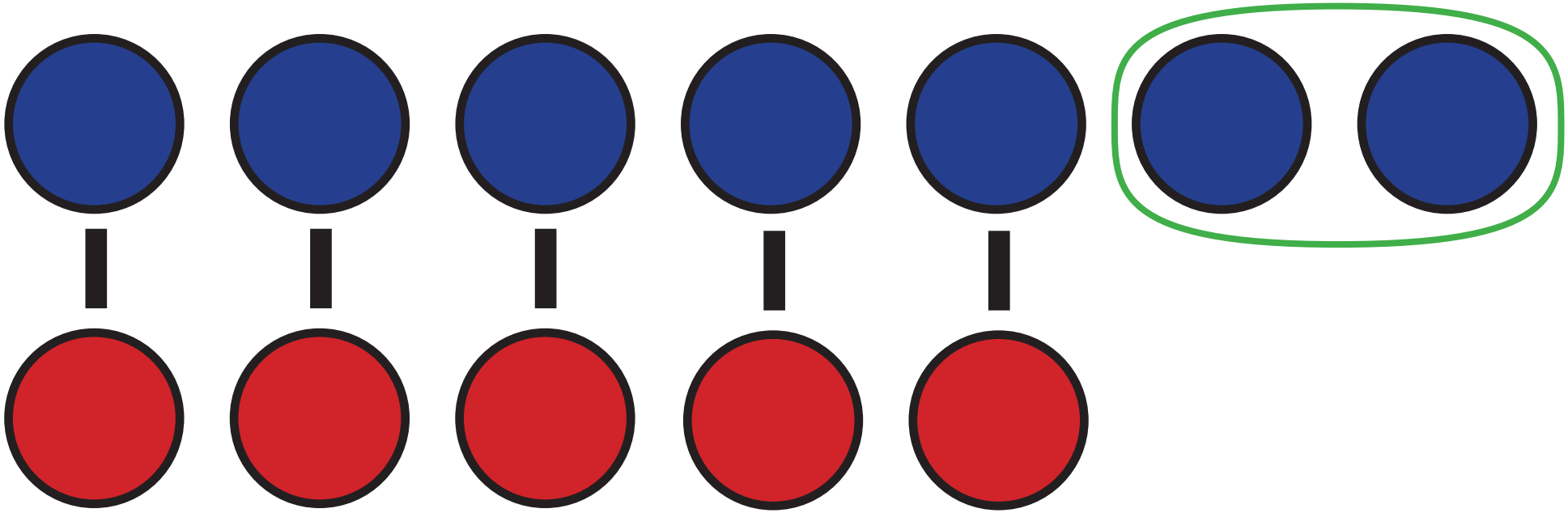
S1: Objects



$$7 - 3 = 4$$

"What do I get if I take 3 away from 7? Answer: 4"

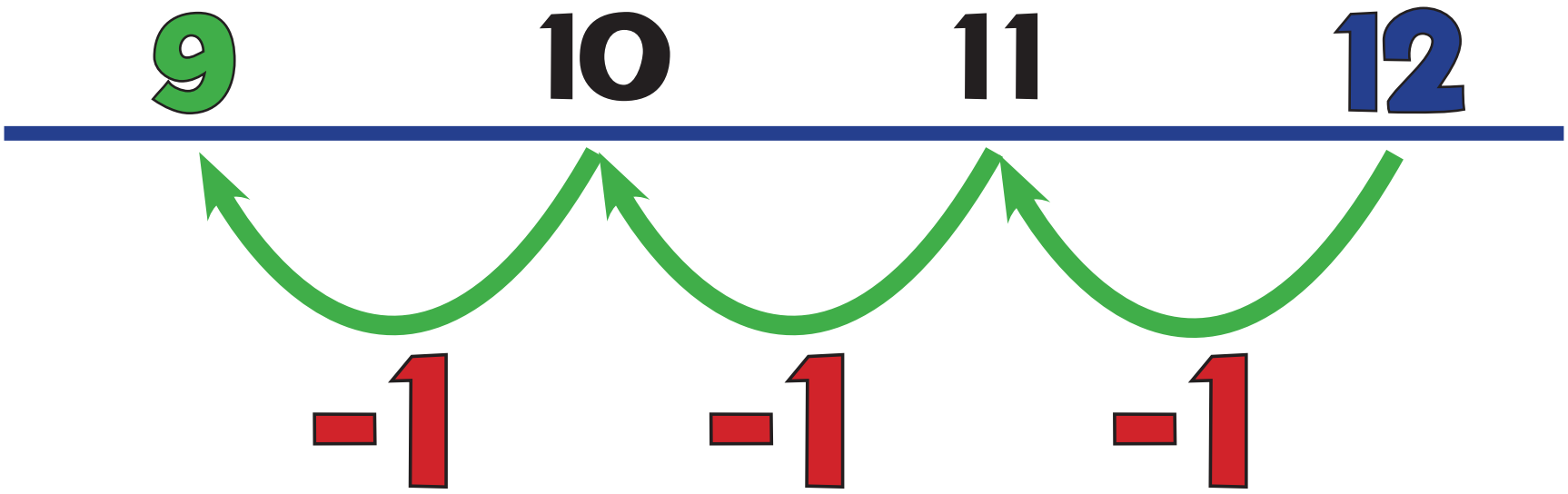
S2: What's the Difference?



7 - 5 = 2

"How many more is 7 than 5? What is the difference?"

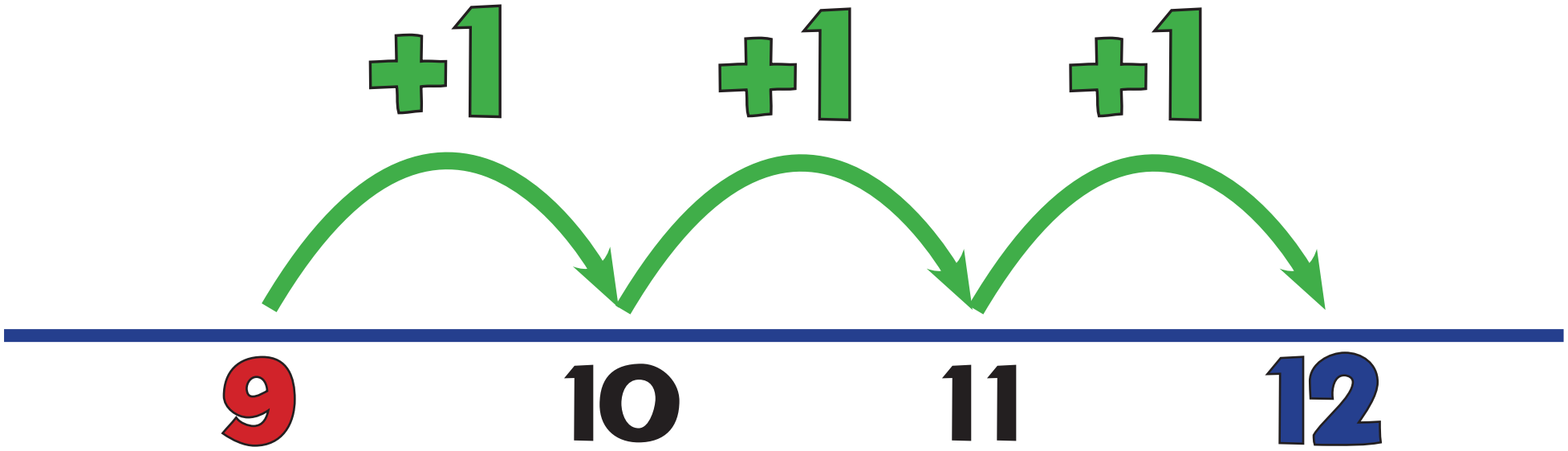
S3: Counting Back



12 - 3 = 9

"What do I get if I take 3 away from 12? Answer: 9"

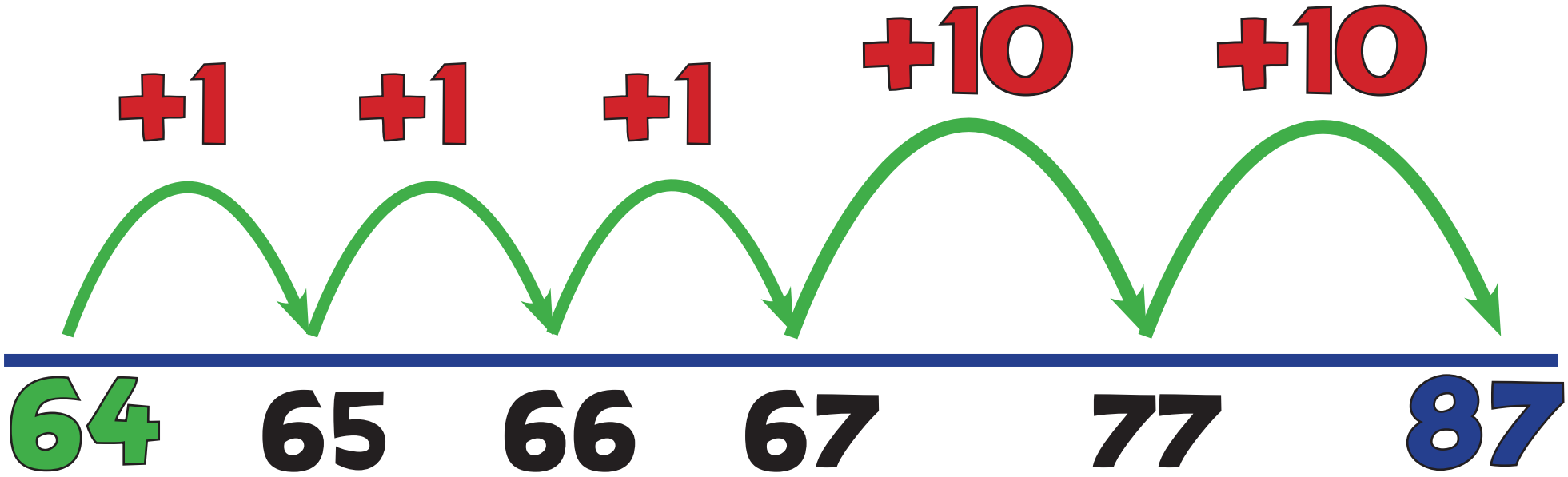
S4: Counting On



12 - 9 = 3

"How many more is 12 than 9? What is the difference?"

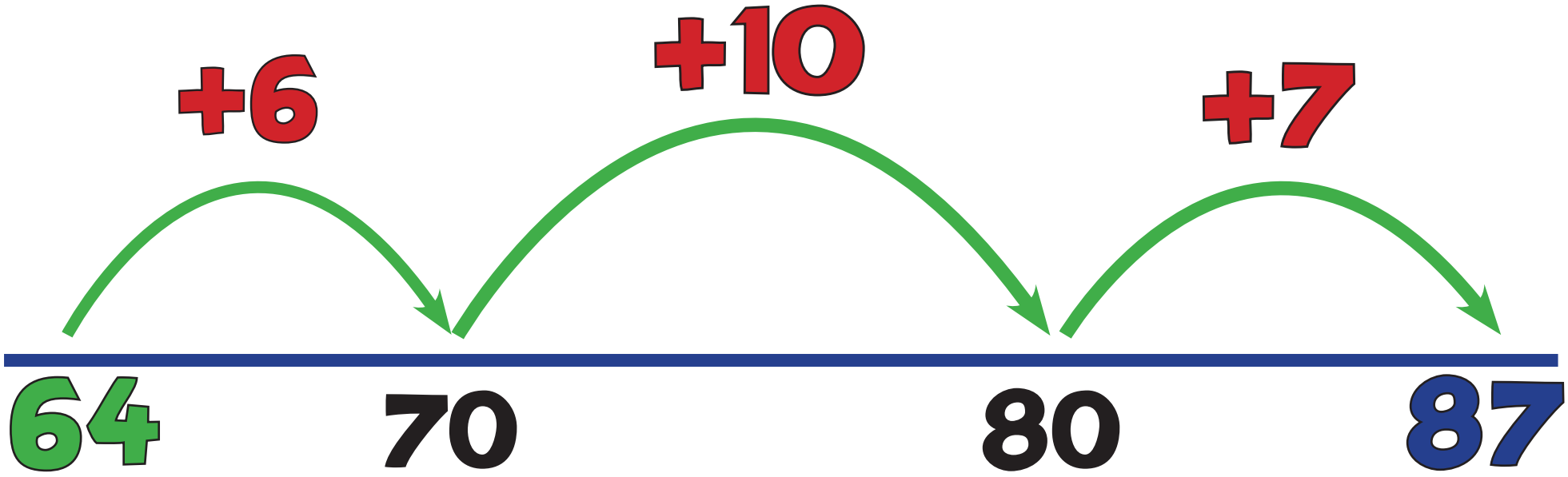
S5: Forward Bounce



87 - 64 = 23

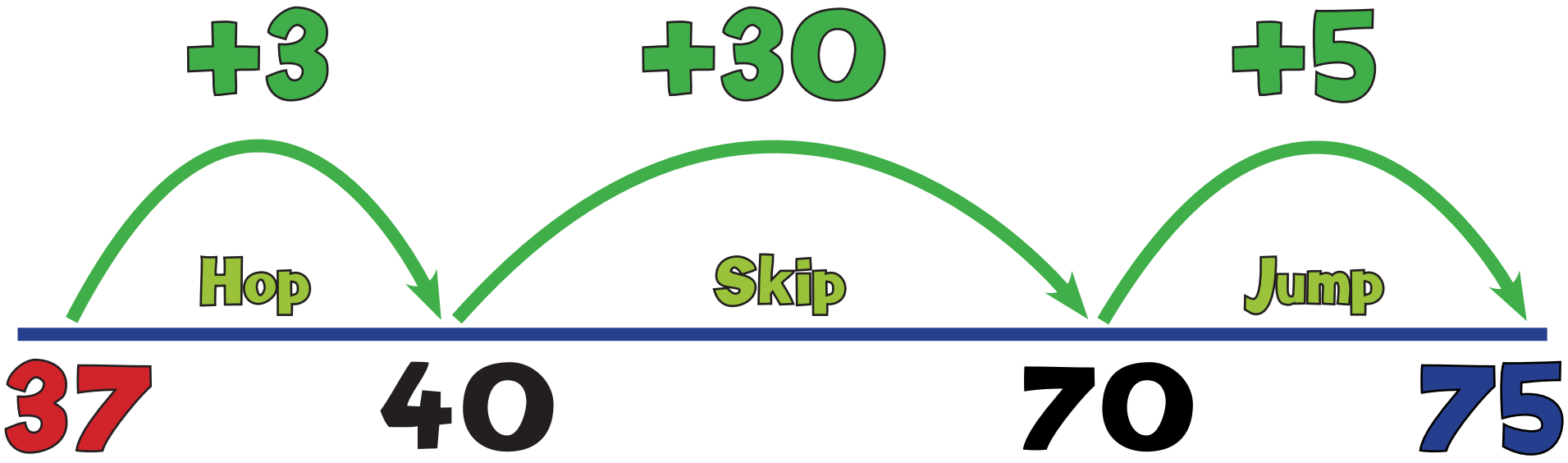
S6: Forward Bounce

to tens



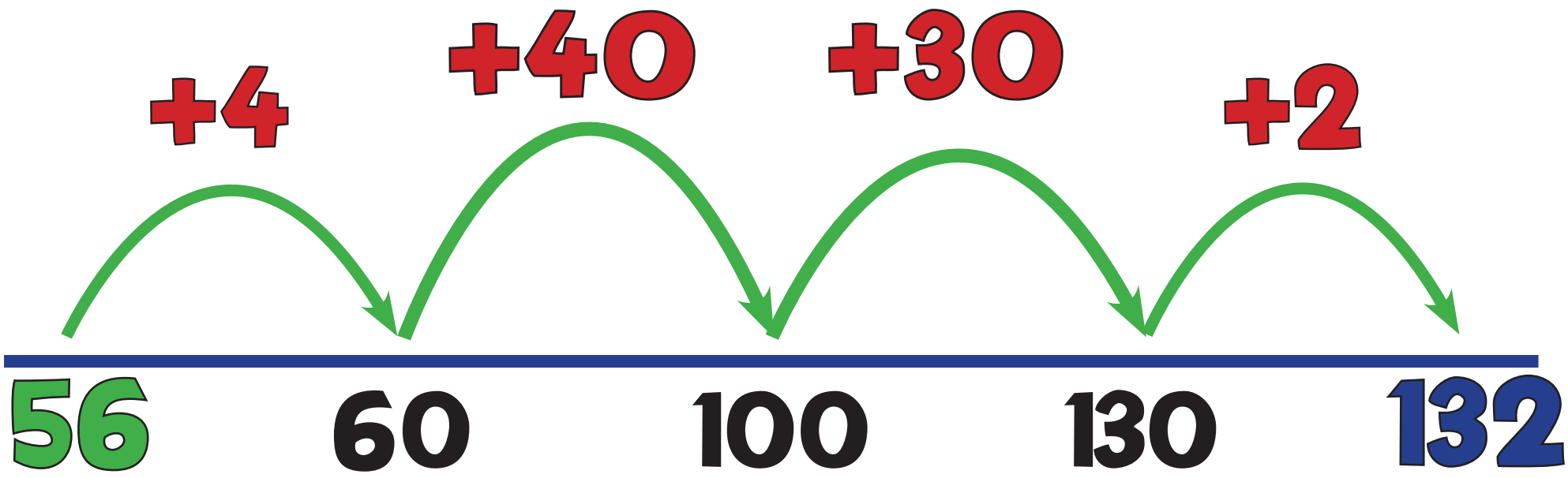
87 - 64 = 23

S7: Triple Jump!



75 - 37 = 38

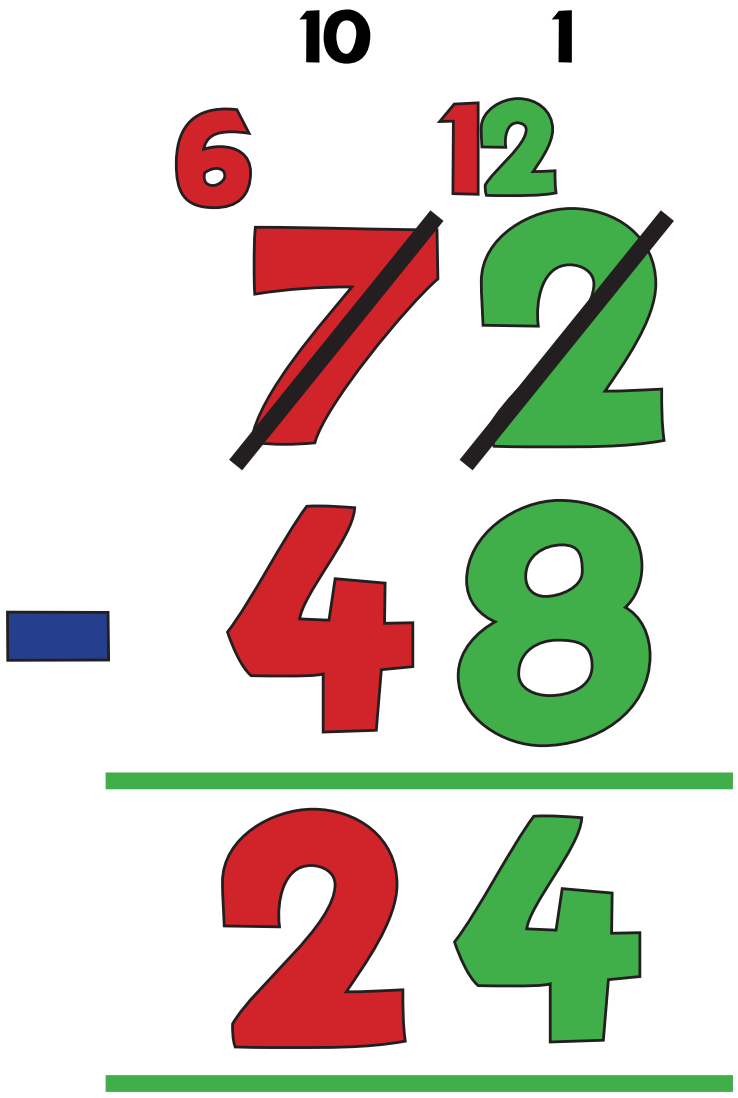
S8: Quad Jump



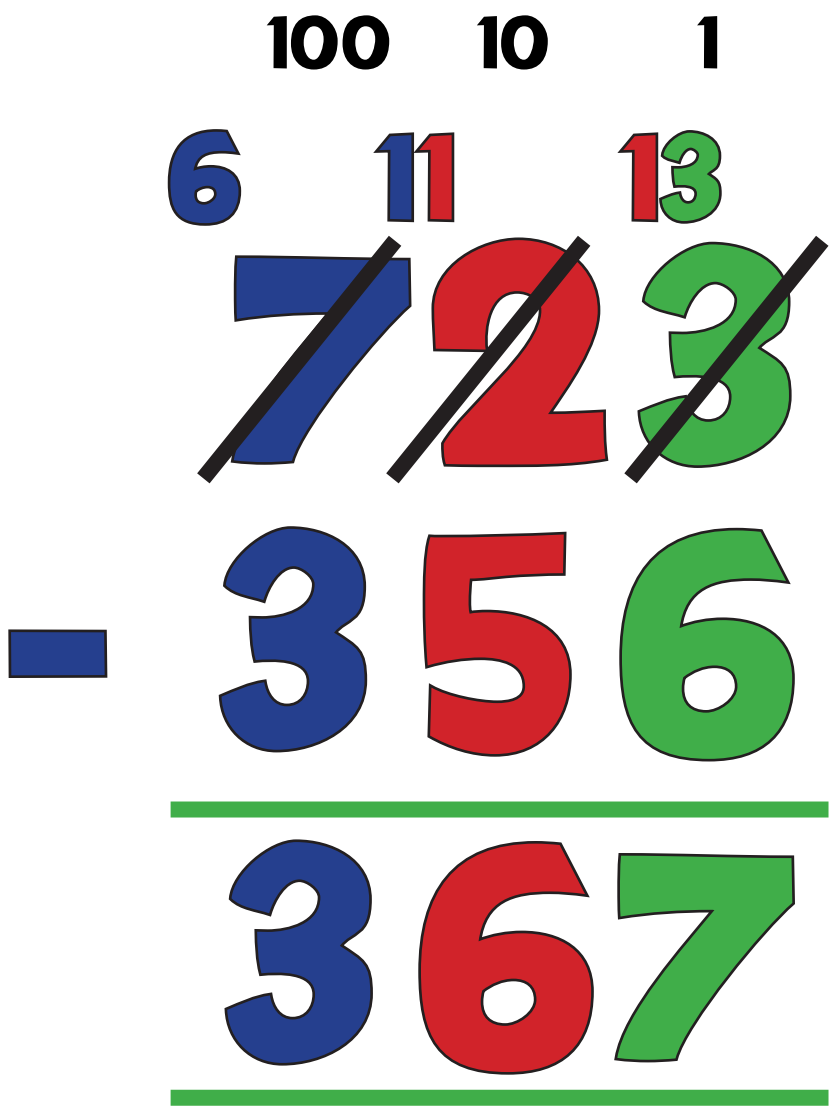
132 - 56 = 76

S9: Column Subtraction

First

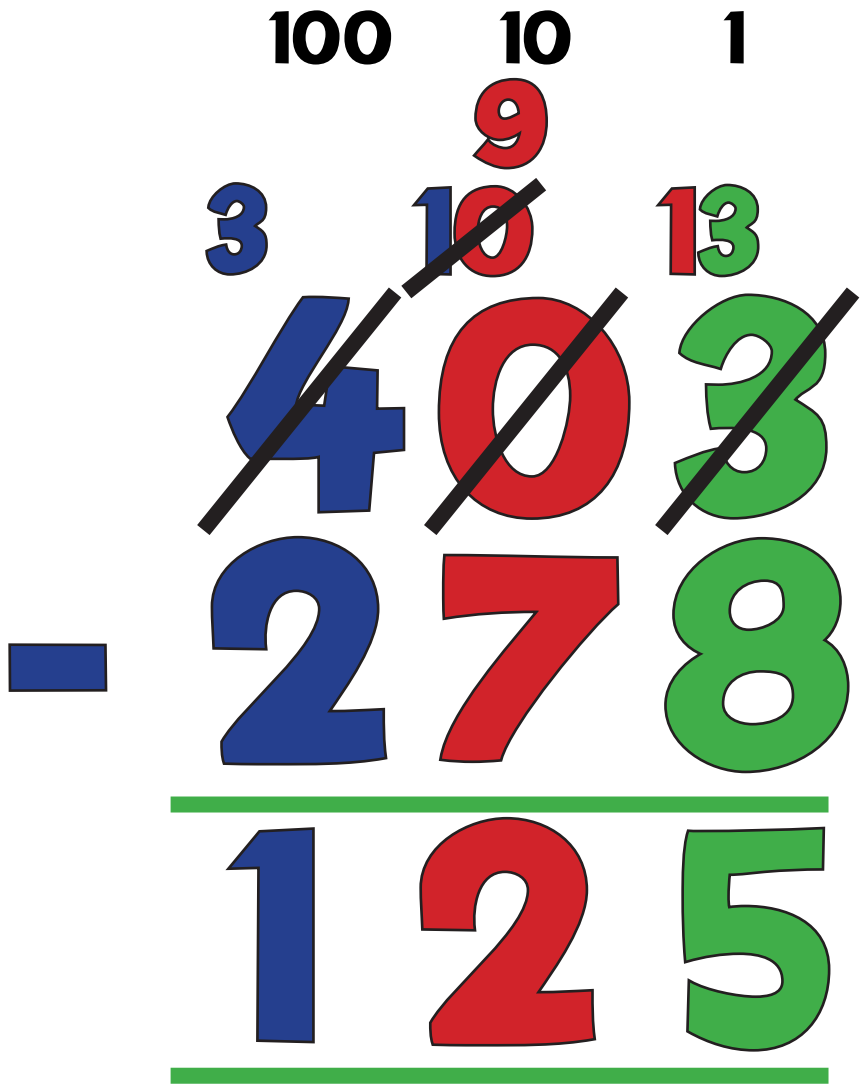


S10: Column Subtraction

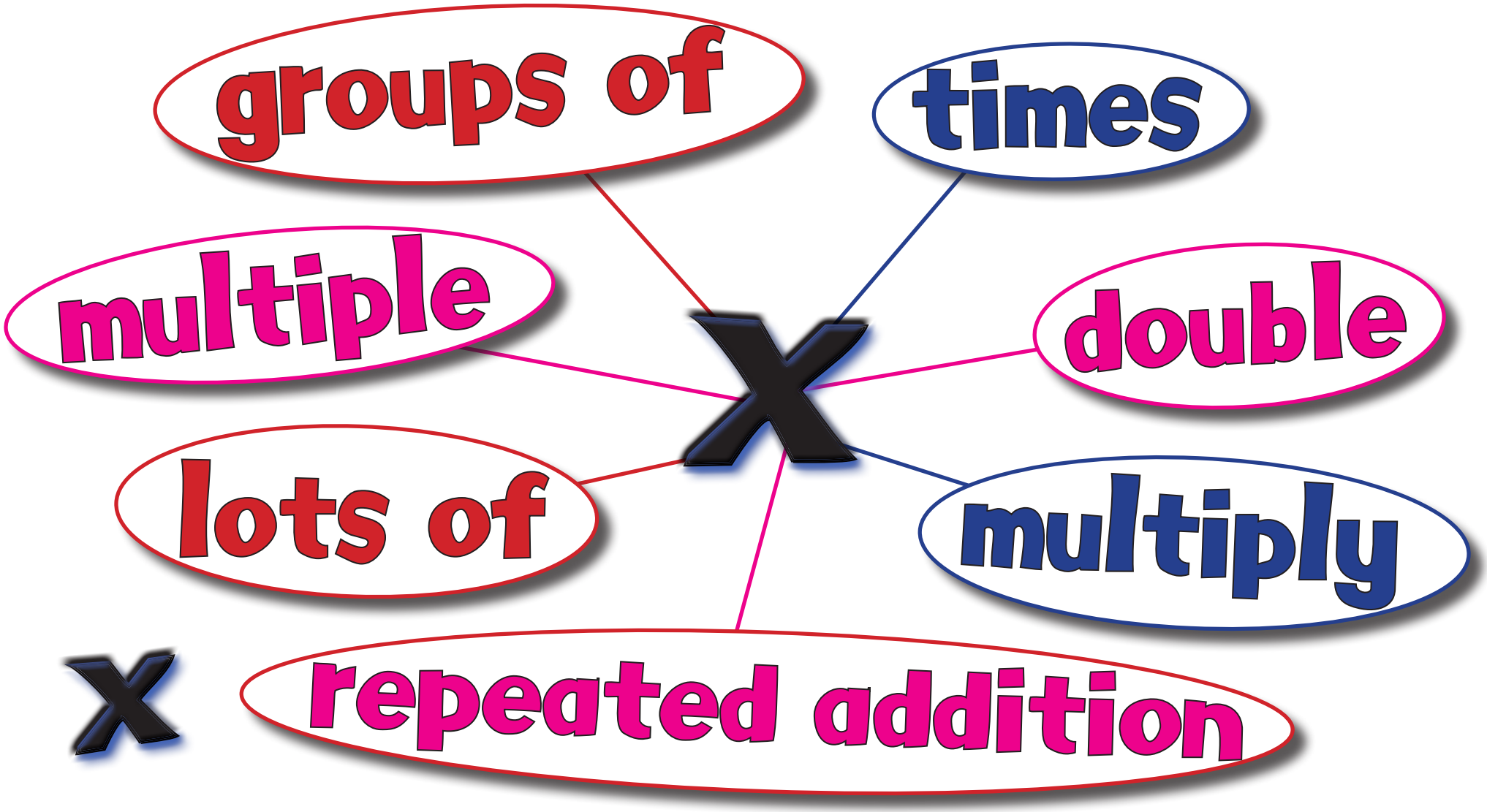


S11: Column Subtraction

Tricky



Multiplication Vocabulary



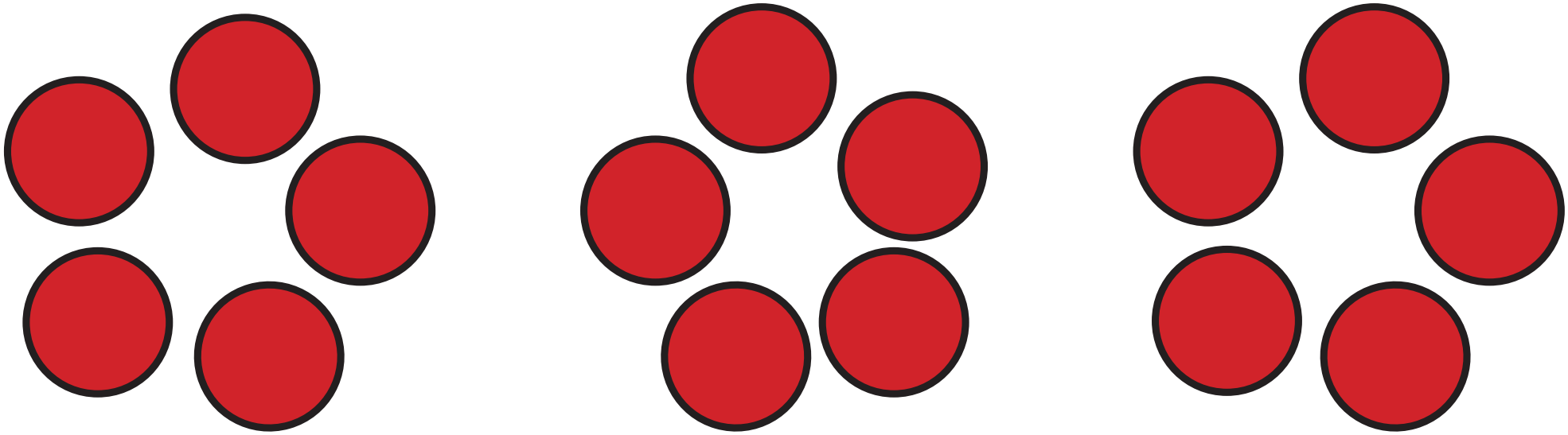
Multiplication Calculation

$4 \times 2 = 8$

(multiplied by) (equals or same as)

M1: Repeated Addition

(Groups)



5 x 3 = 5 + 5 + 5 = 15

"5 multiplied by 3" means "5, 3 times", which gives "3 lots of 5"!

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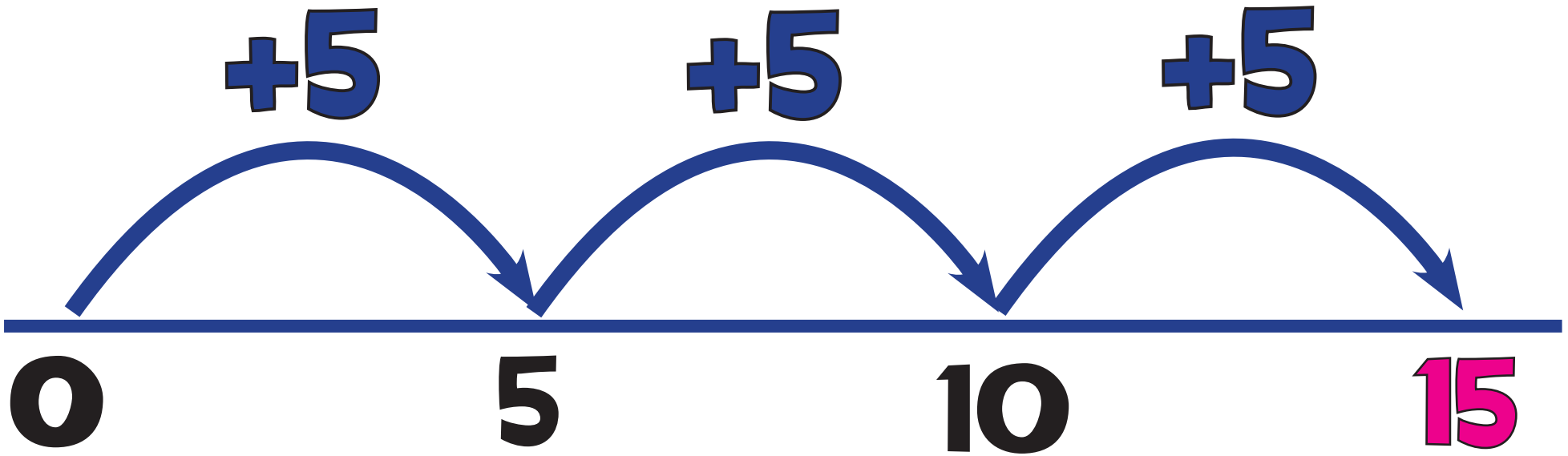
M2: Repeated Addition

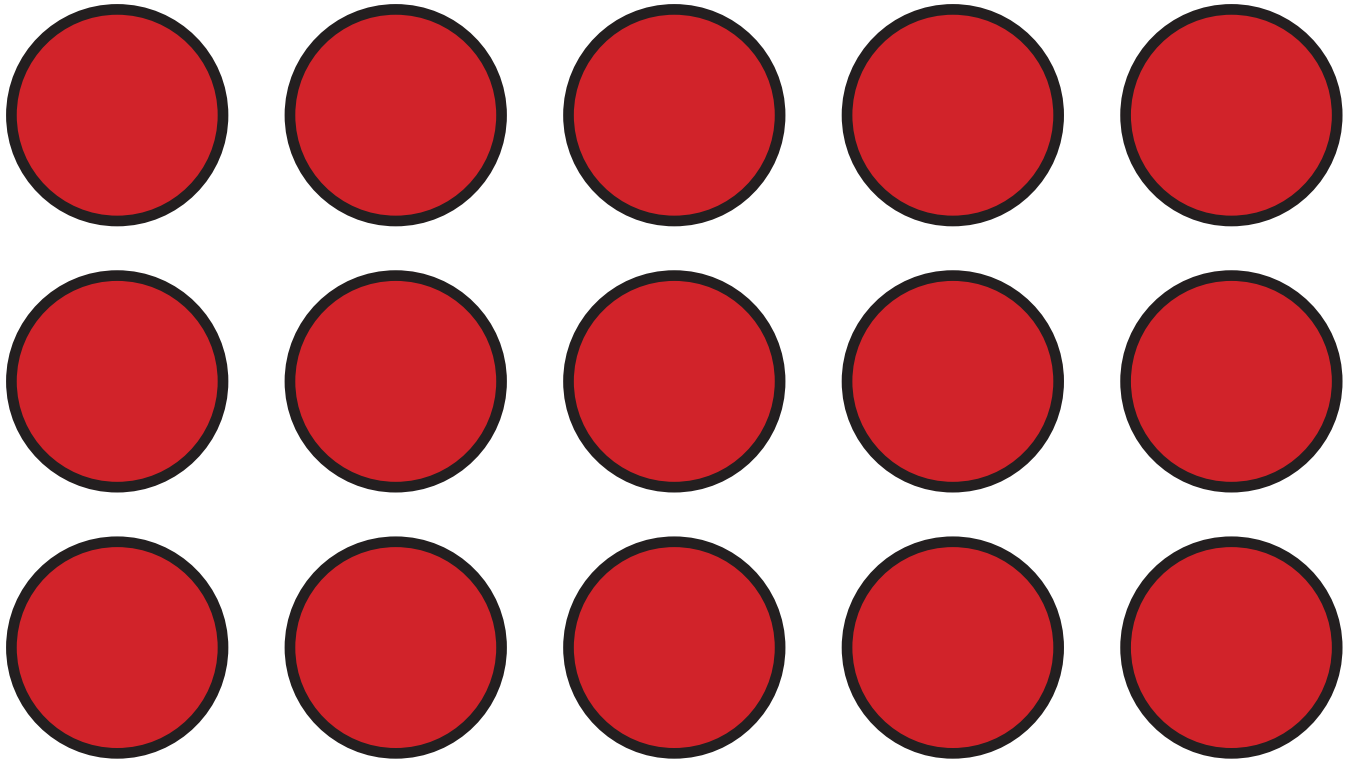
(Number Line)



5 x 3 = 5 + 5 + 5 = 15

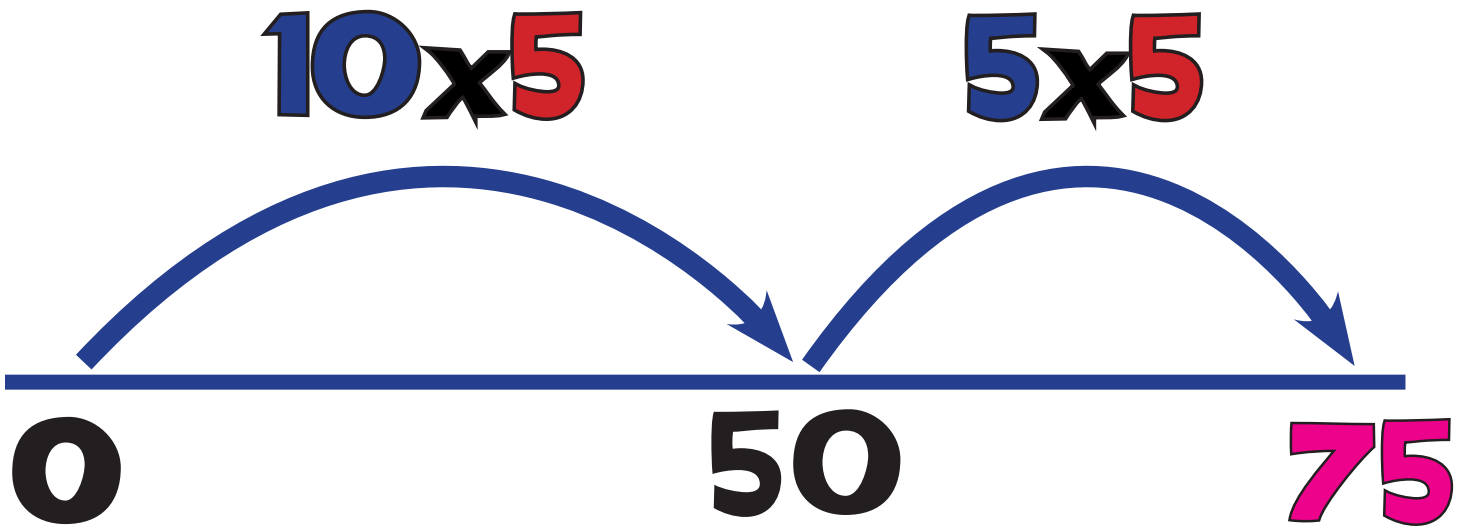
"5 times 3" means "5, 3 times!"

M3: Arrays



$3 \times 5 = 15$ or $5 \times 3 = 15$

M4: Multi Boing!



10 x 5 = 50

5 x 5 = 25

75

15 x 5 = 75

M5: Grid Method

Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

M6: Expanded Column

100	10	1	
	4	3	
x		6	
	1	8	(3 x 6)
2	4	0	(40 x 6)
2	5	8	

M7: Column Multiplication

100	10	1
	4	3
x		6
2	5	8
2	1	

M8: Grid Method

Long Multiplication

43 x 65 = 2795

x	40	3
60	2400	180
5	200	15

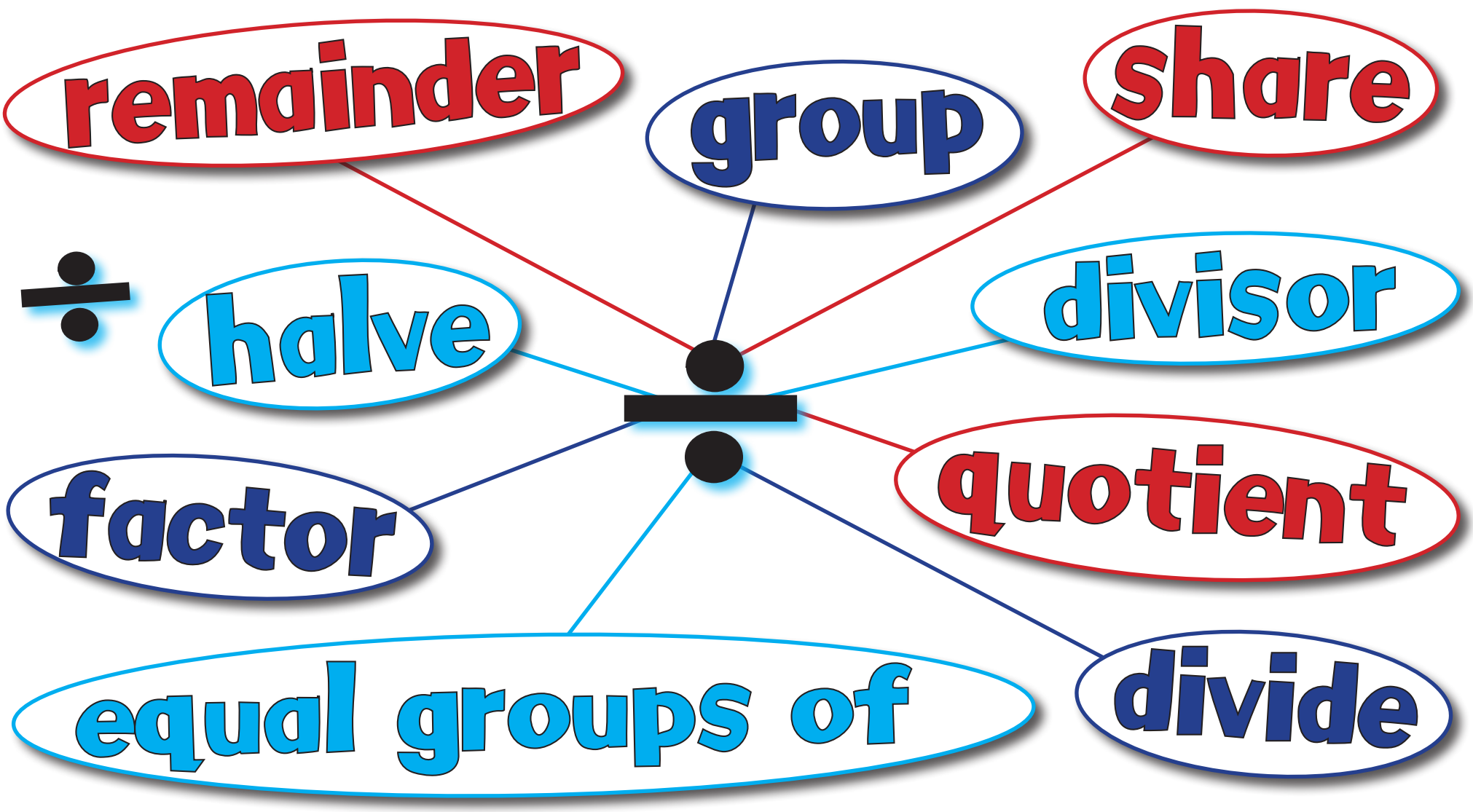
2400 + 180 + 200 + 15 = 2795

M9: Long Multiplication

Column

$$
\begin{array}{rr}
 & 43 \\
\times & 65 \\
\hline
 & 215 \quad (5 \times 43) \\
+ & 2580 \quad (60 \times 43) \\
\hline
 & 2795
\end{array}
$$

Division Vocabulary



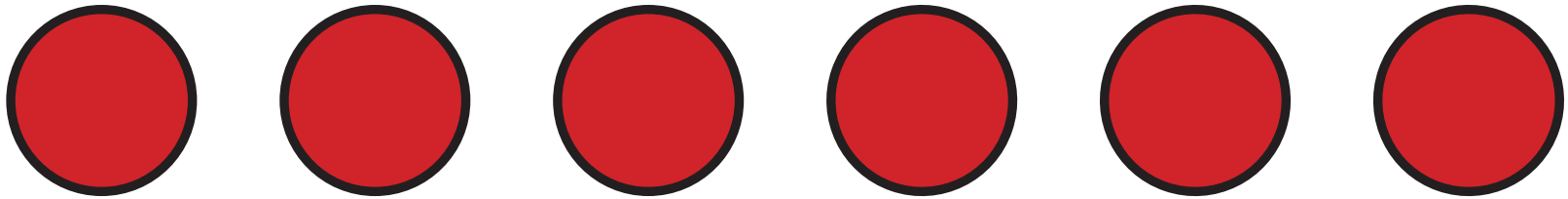
Division Calculation

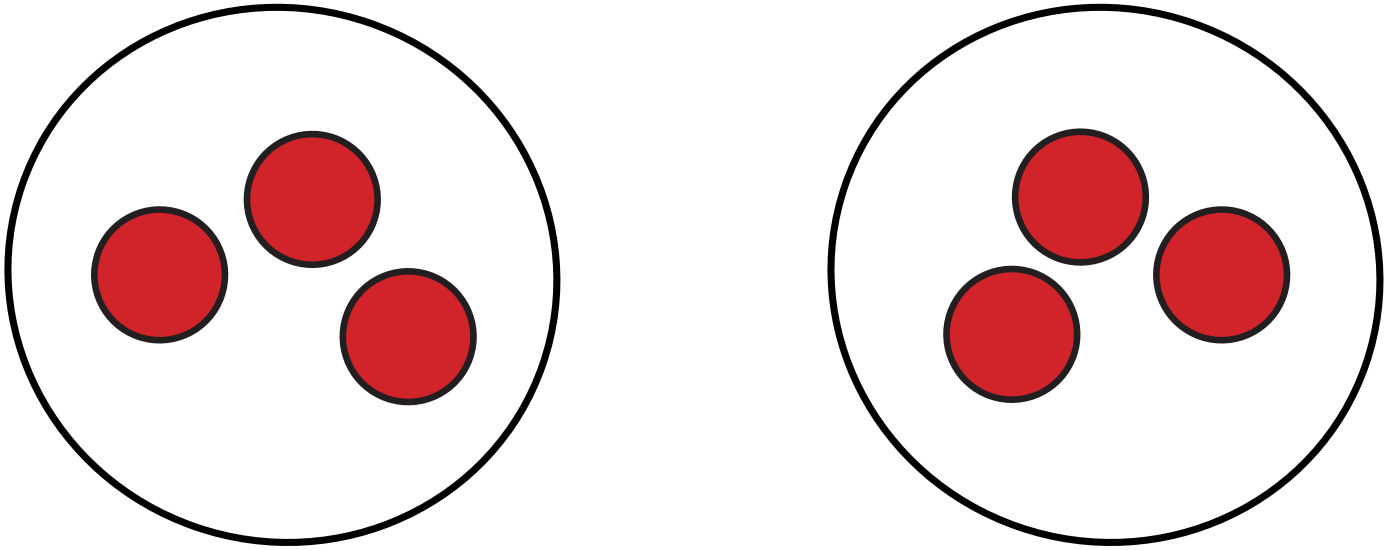
$$8 \div 2 = 4$$

(divided by) (equals or same as)

$$8 \div 4 = 2$$

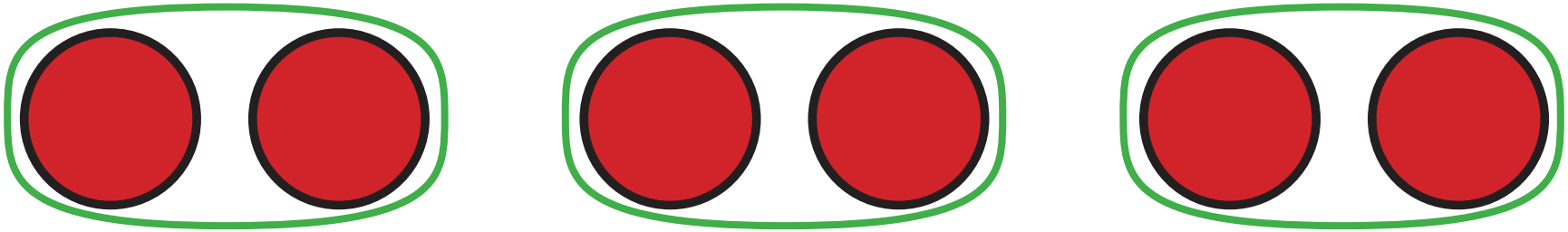
D1: Sharing (Concept)





"If I share 6 into 2 equal amounts, how many in each group?" Answer: 3

D2: Grouping (Concept)

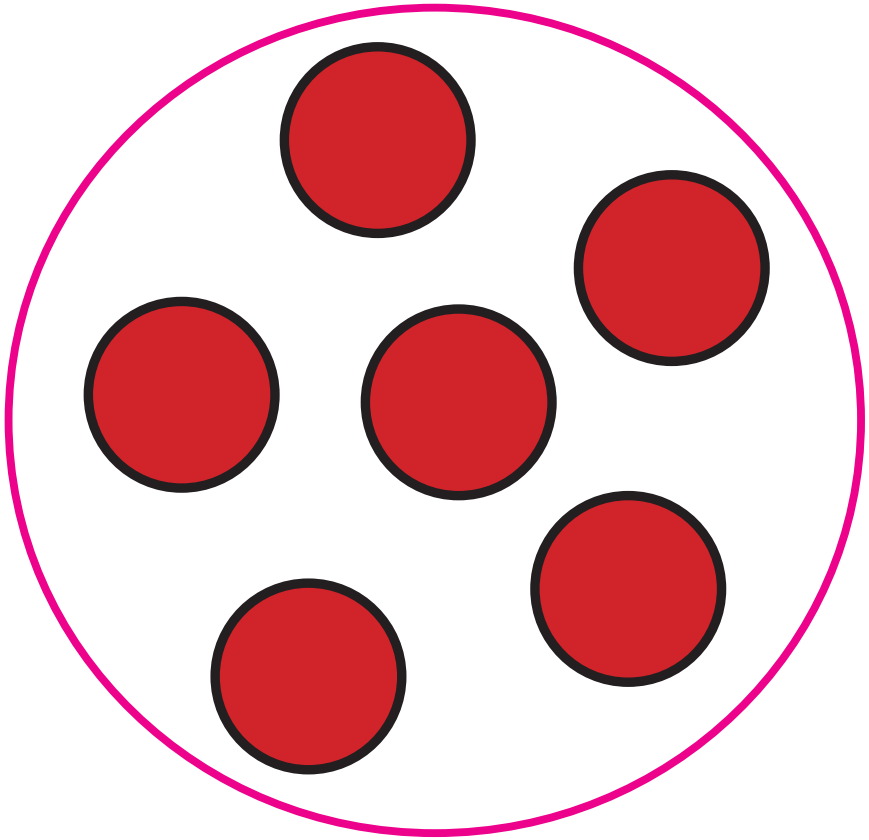


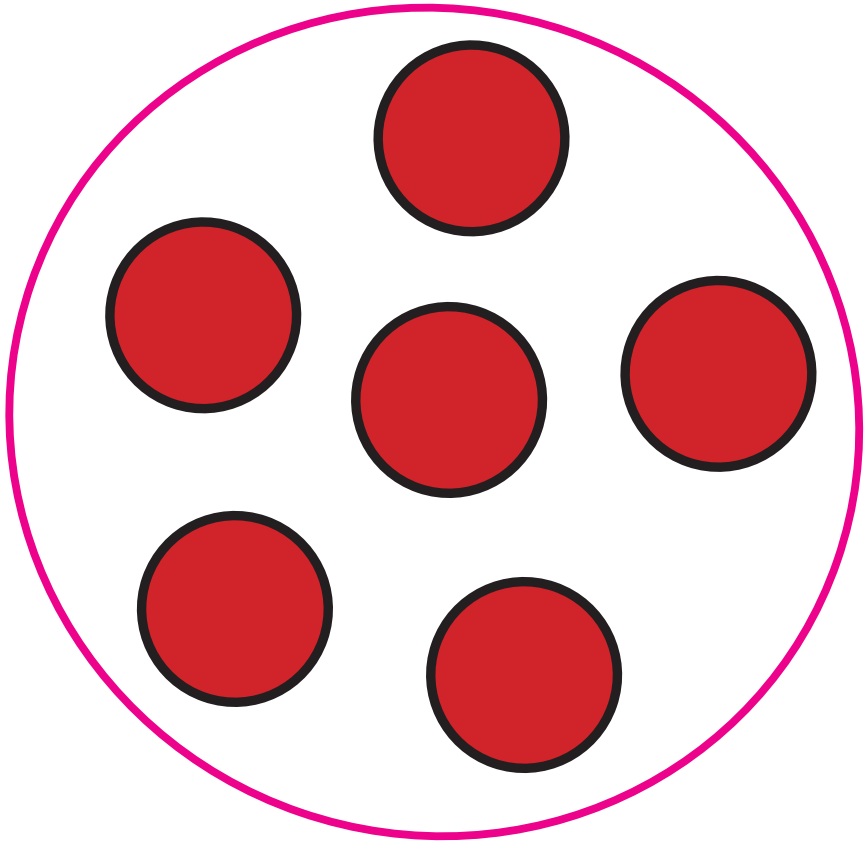
"How many groups of 2 can I make out of 6?
Answer: 3

D3: Division as Sharing

12 ÷ 2 = 6

"If I share 12 into 2 equal amounts, how many in each group?" Answer: 6

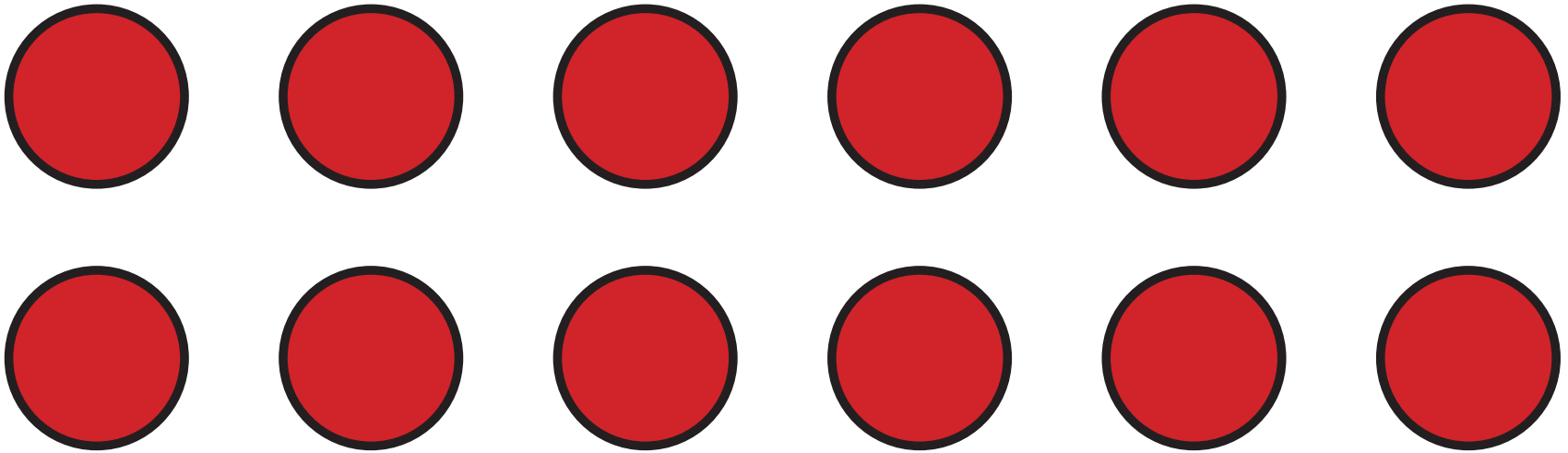




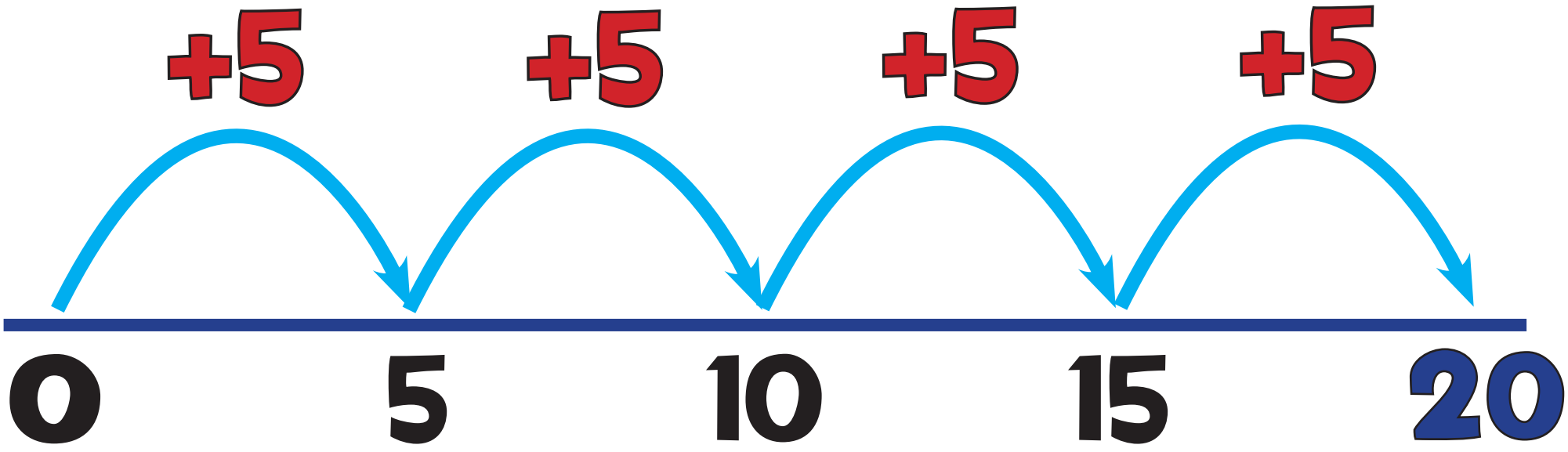
D4: Division as Grouping

12 ÷ 2 = 6

"How many groups of 2 can I fit into 12?"
Answer: 6



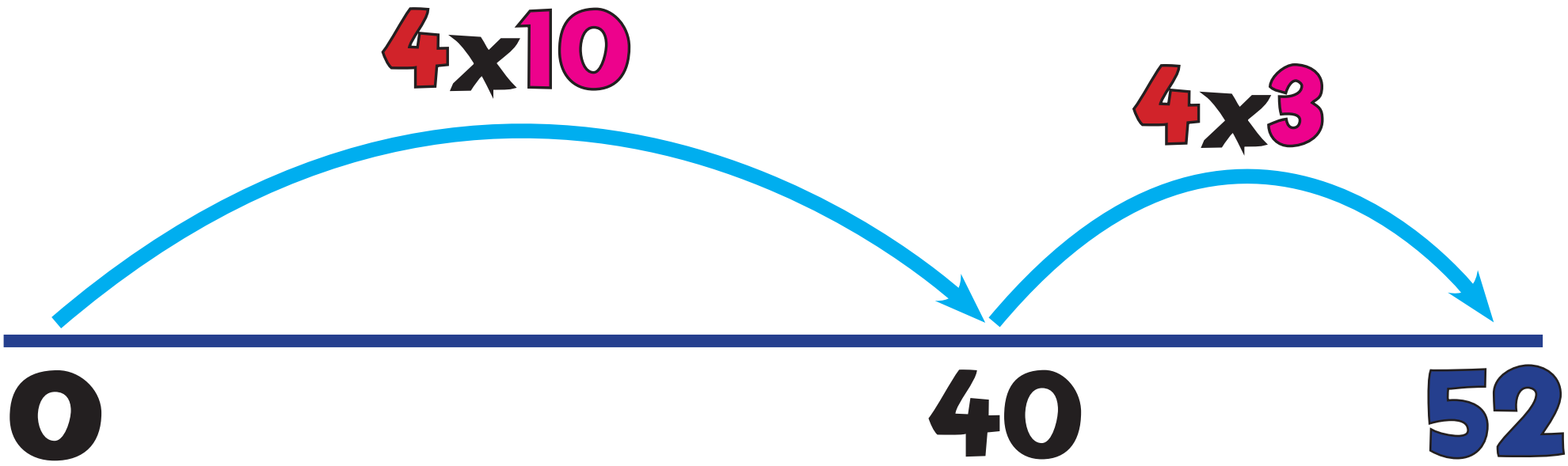
D5: Grouping on a Number Line



"How many 5s in 20?"
Answer: 4

$$20 \div 5 = 4$$

D6: Grouping on a Number Line 2



"How many 4s in 52?"
Answer: 13

$$52 \div 4 = 13$$

D7: Short Division

$$136 \div 4 = 34$$

$$\begin{array}{r} 34 \\ 4\overline{)136} \end{array}$$

D8: Long Division

Short Division Method

$$37 \overline{)983} = 26 \text{ r } 21$$

9 24

D9: Long Division

Decimal Remainder

$$432 \div 5 = 86.4$$

$$5\overline{)432.0} = 086.4$$

D10: Long Division

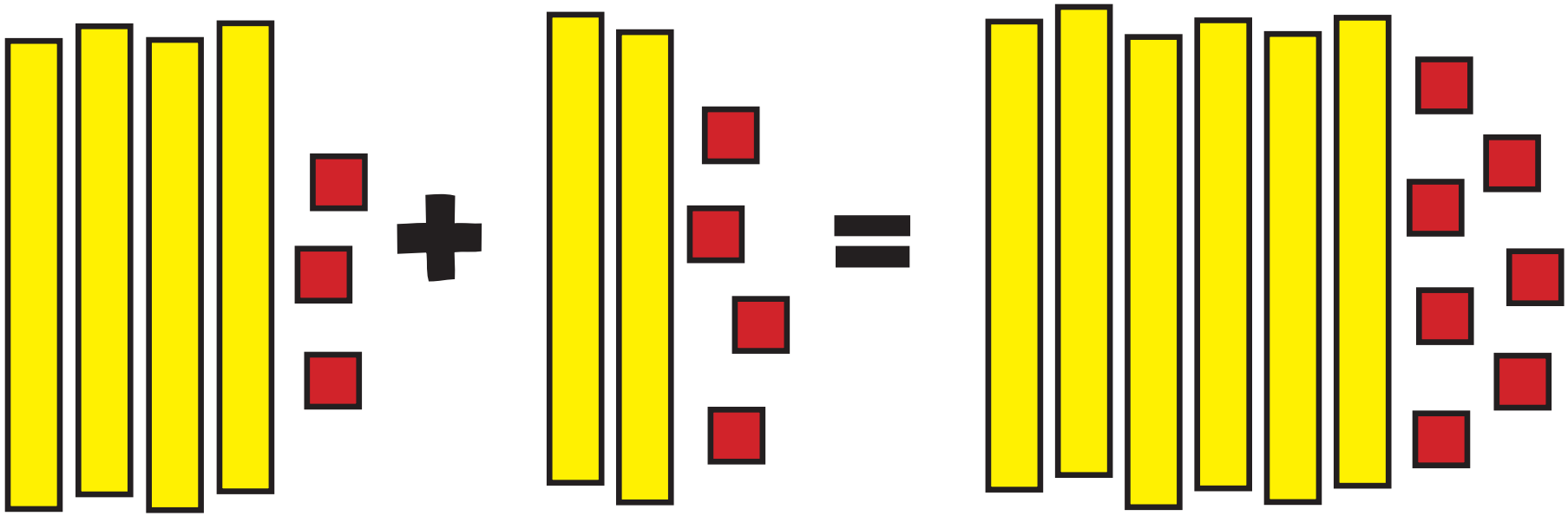
Traditional Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\,74 \\
\hline
243 \\
-\,222 \\
\hline
21
\end{array}
$$

$983 \div 37 = 26 \text{ r } 21$

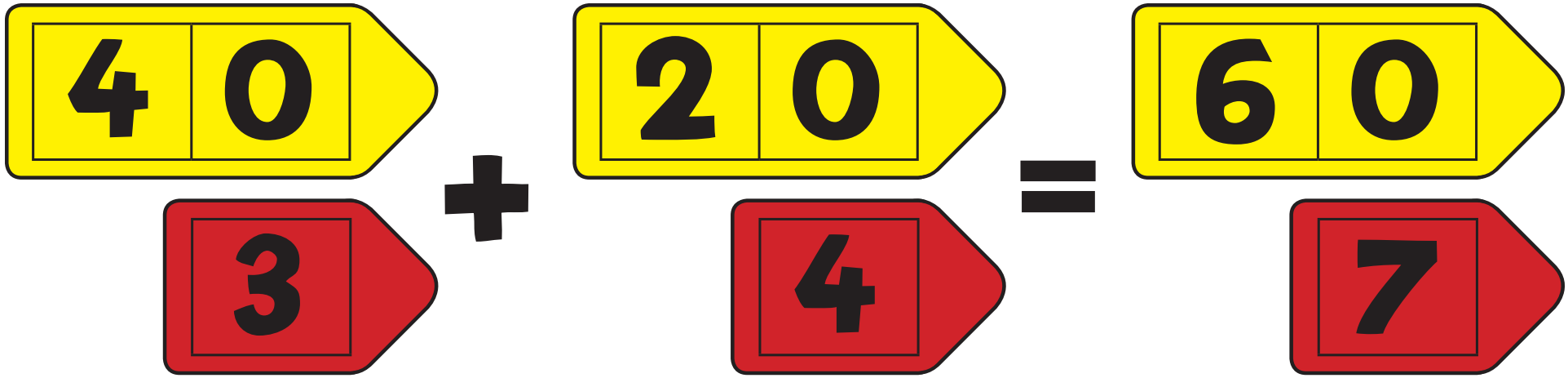
A: Base 10

43 + 24 = 67



B: Arrow Cards

43 + 24 = 67



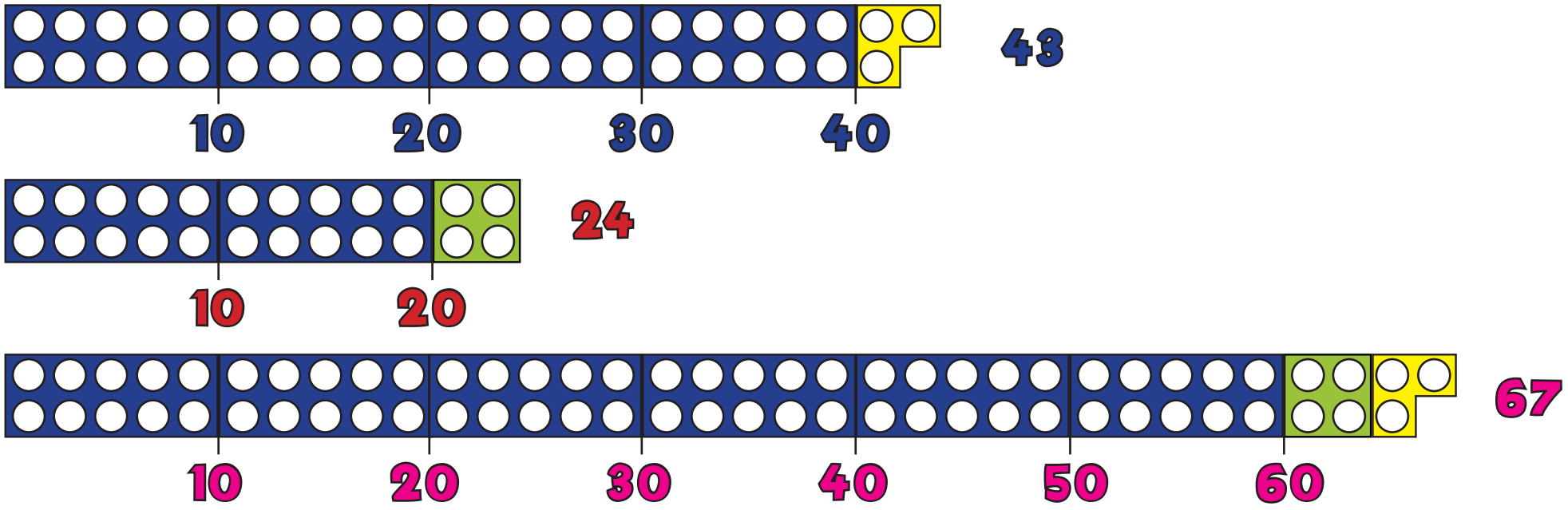
C: Hundred Square

43 + 24 = 67

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

D: Numicon

43 + 24 = 67



E: Money

43 + 24 = 67