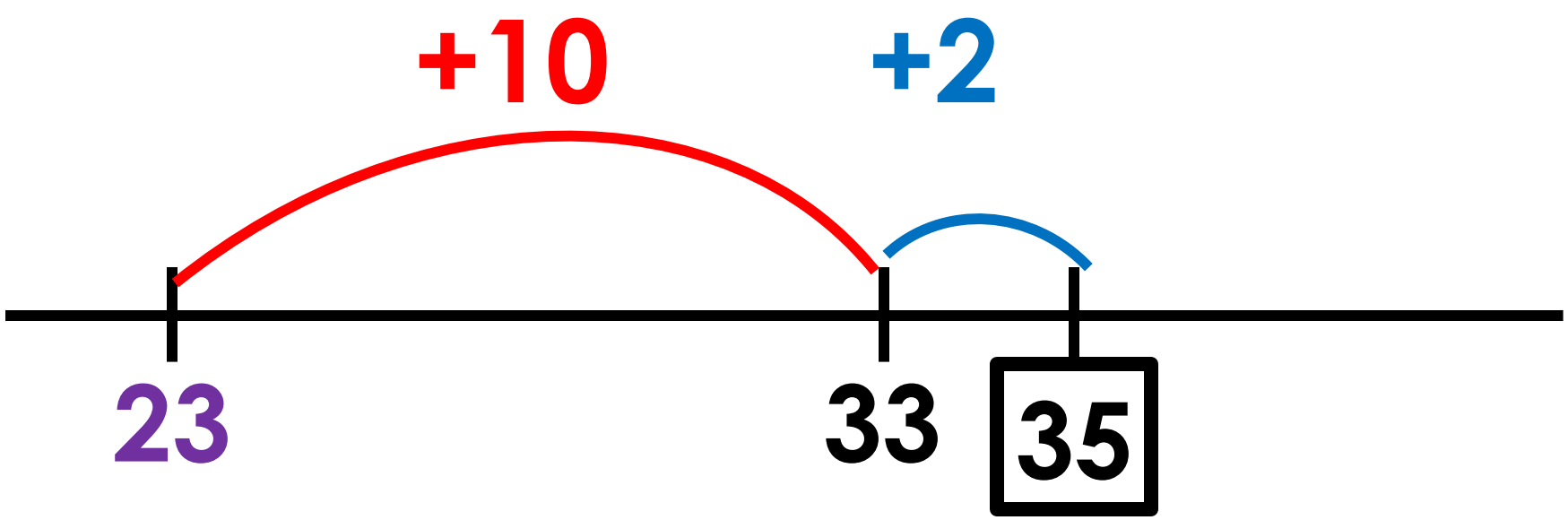
# Addition Strategies

Addition Strategy

# Add Up In Chunks

Keep the first number whole, add the second number in friendly chunks

23 + 12

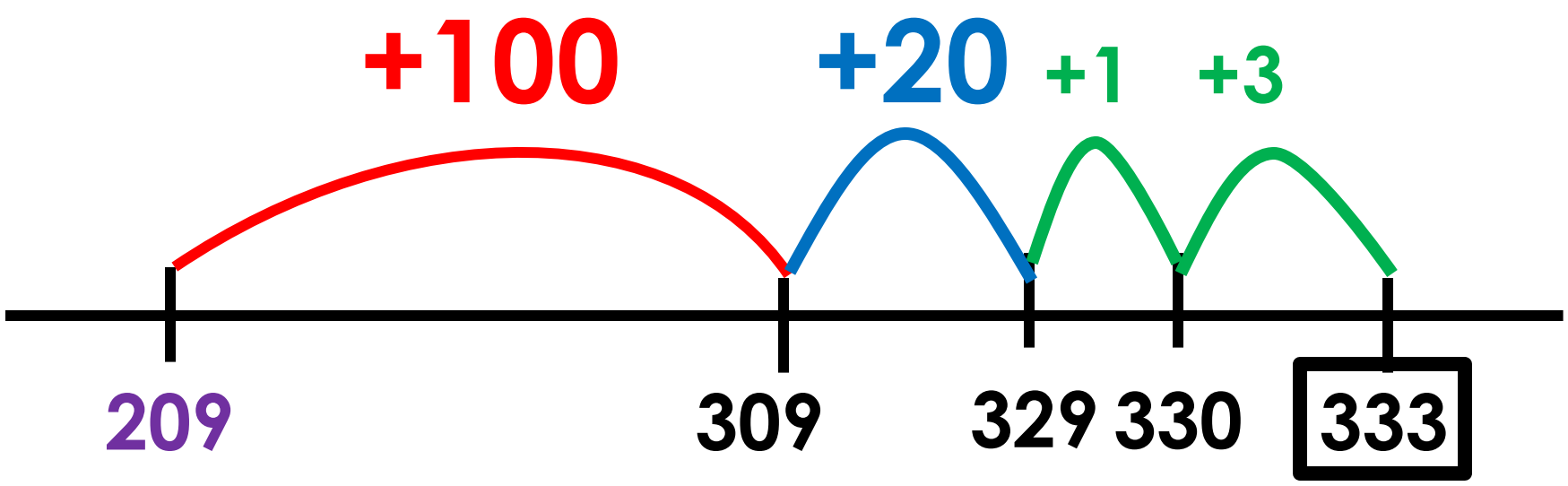


Addition Strategy

# Add Up In Chunks

Keep the first number whole, add the second number in friendly chunks

209 + 124



Addition Strategy

# Place Value

**Partition the numbers and add by the place value**

$$21 + 14$$


$$20 + 10 = 30$$

$$1 + 4 = 5$$

$$30 + 5 = \boxed{35}$$

Addition Strategy

# Place Value

**Partition the numbers and add by the place value**

$$124 + 235$$

$$100 + 200 = 300$$

$$20 + 30 = 50$$

$$4 + 5 = 9$$

$$300 + 50 + 9 = \boxed{359}$$

Addition Strategy

# Compensation

**Make friendly numbers by removing from one number and adding the same amount to the other number**

$$17 + 19$$

$$\underline{-1} \qquad \underline{+1}$$

$$16 + 20 = \boxed{36}$$

Addition Strategy

# Compensation

**Make friendly numbers by removing from one number and adding the same amount to the other number**

$$135 + 118$$

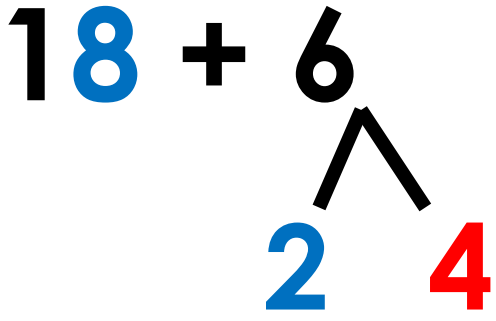
$$\underline{-2} \qquad \underline{+2}$$

$$133 + 120 = \boxed{253}$$

Addition Strategy

# Making a Ten/Bridging Through Ten

Make a ten by partitioning a number




$$10 + (8 + 2) = 20$$

$$20 + 4 = \boxed{24}$$

Addition Strategy

# Making a Ten/Bridging Through Ten

Make a ten by partitioning a number

$$137 + 118$$


$$130 + 110 + (7 + 3) + 5$$

$$240 + (7 + 3) + 5$$

$$250 + 5 = \boxed{255}$$

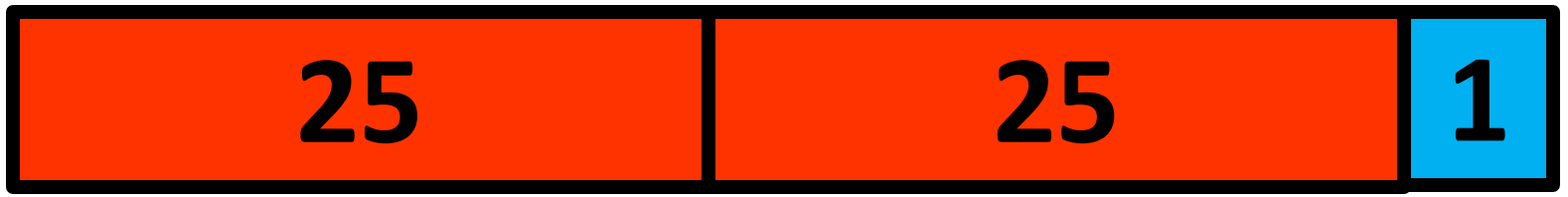
Addition Strategy

# Near Doubles

## Knowing Doubles helps with Near Doubles

$$25 + 26$$

$$25 + 26 = 25 + (25 + 1)$$




$$50 + 1 = \boxed{51}$$

Addition Strategy

# Near Doubles

**Knowing Doubles helps with Near Doubles**

$$340 + 330$$

$$340 + 330 = 340 + (340 - 10)$$

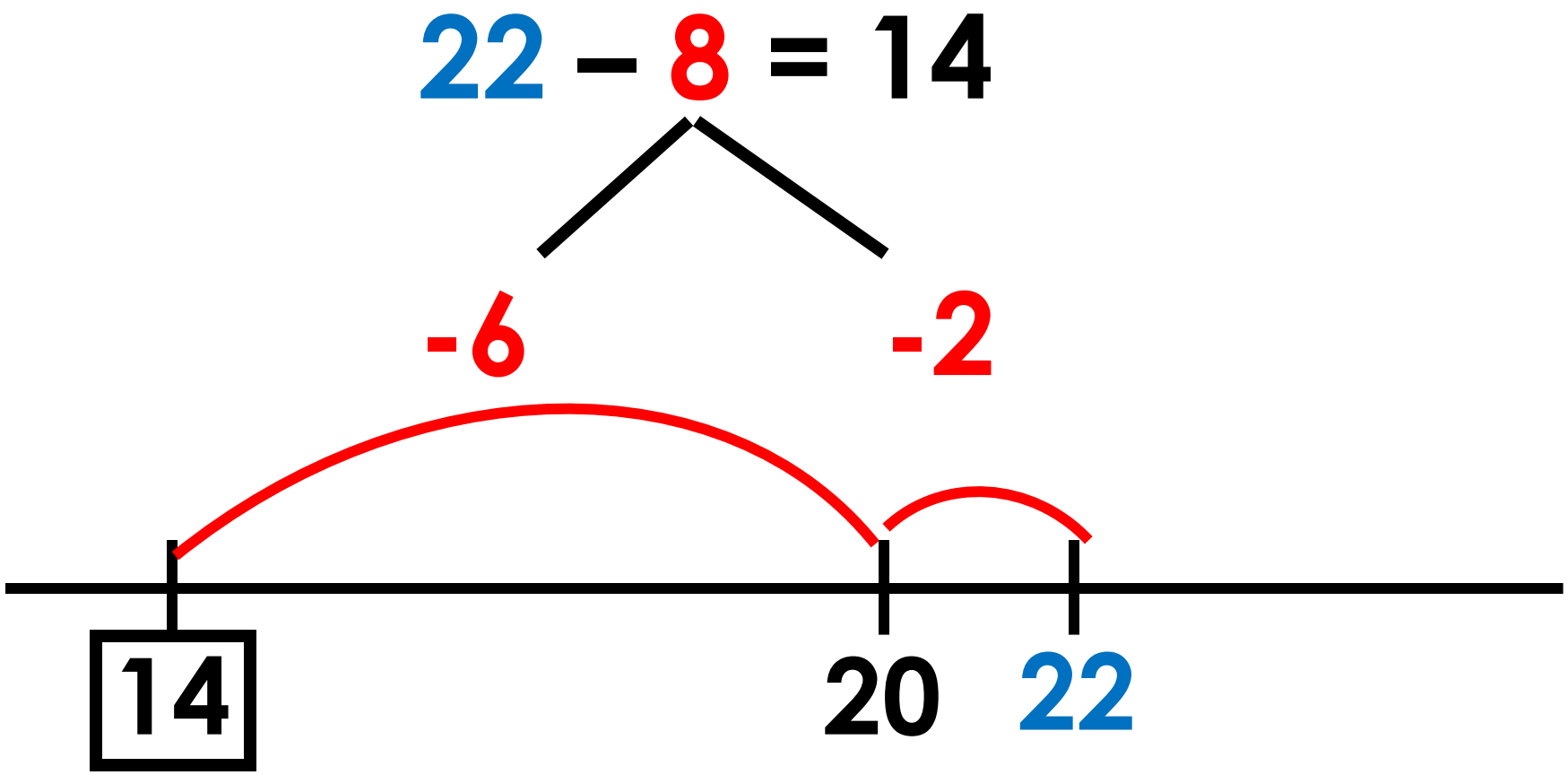
$$680 - 10 = \boxed{670}$$

# Subtraction Strategies

Subtraction Strategy

# Removal

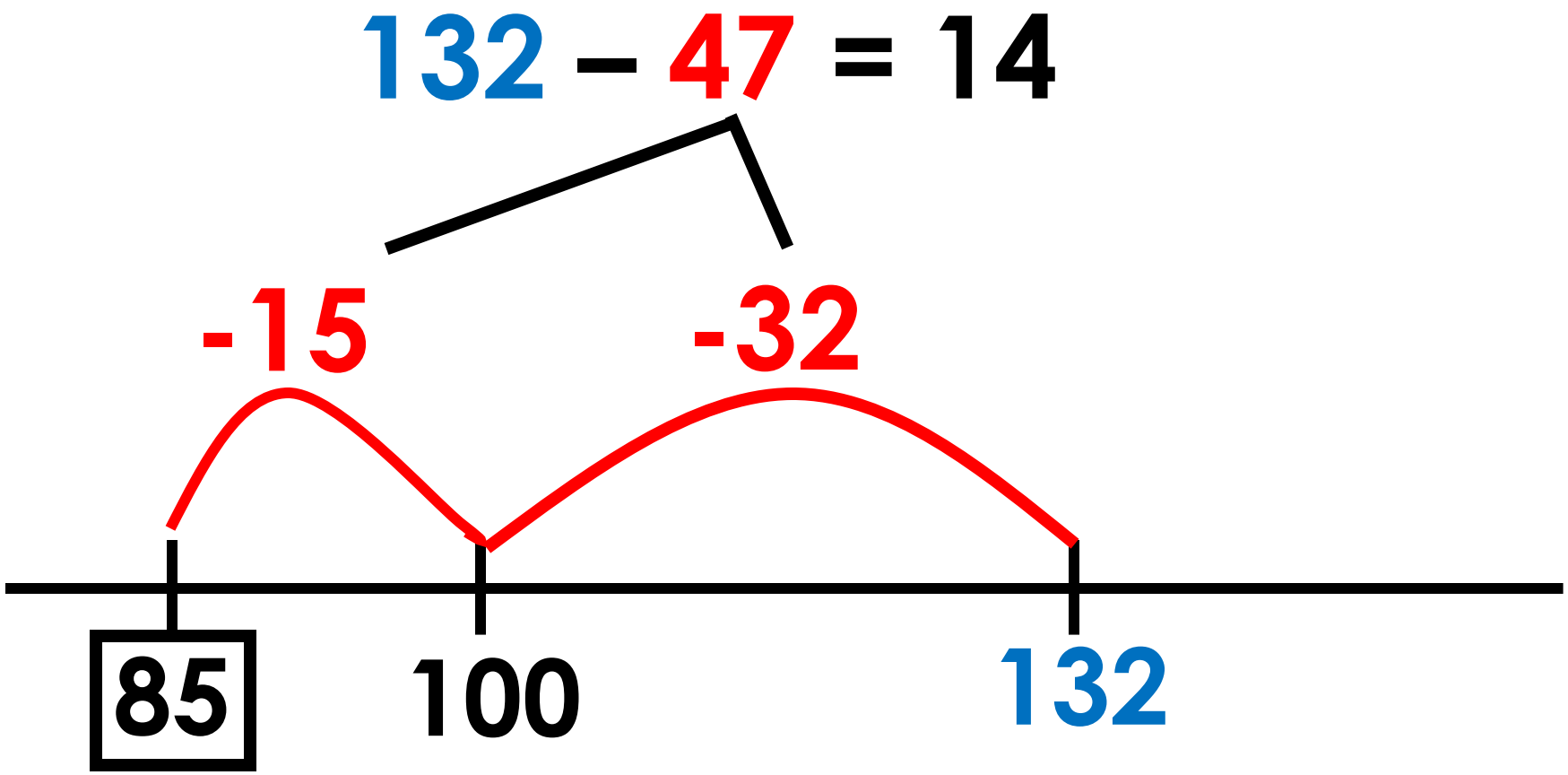
**Partition to remove the number within the subtraction.**



Subtraction Strategy

# Removal

**Partition to remove the number within the subtraction.**

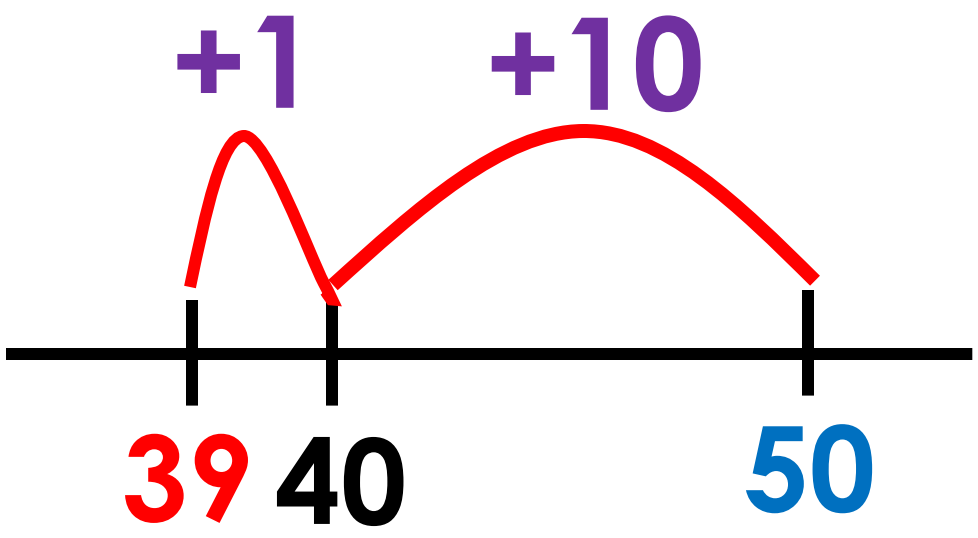


Subtraction Strategy

# Add Up

**Partition to add from the lowest number to the highest number**

## 50 – 39



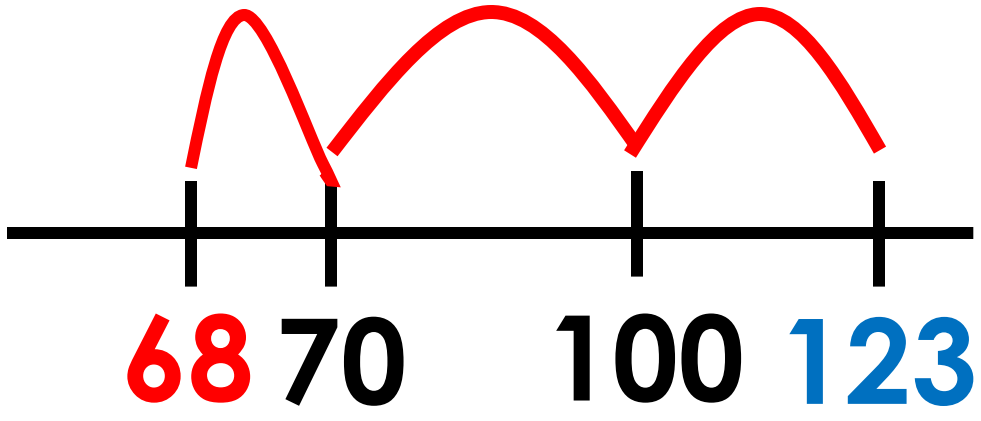

1 + 10 = 11

Subtraction Strategy

# Add Up

**Partition to add from the lowest number to the highest number**

## 123 – 68




2 + 30 + 23 = **55**

Subtraction Strategy

# Place Value Subtraction and Negative Numbers

Partition and subtract using place value

$$75 - 38$$

$$70 - 30 = 40$$

$$5 - 8 = -3$$

$$40 - 3 = \boxed{37}$$

Subtraction Strategy

# Place Value Subtraction and Negative Numbers

Partition and subtract using place value

$$243 - 169$$

$$200 - 100 = 100$$

$$40 - 60 = -20$$

$$3 - 9 = -6$$

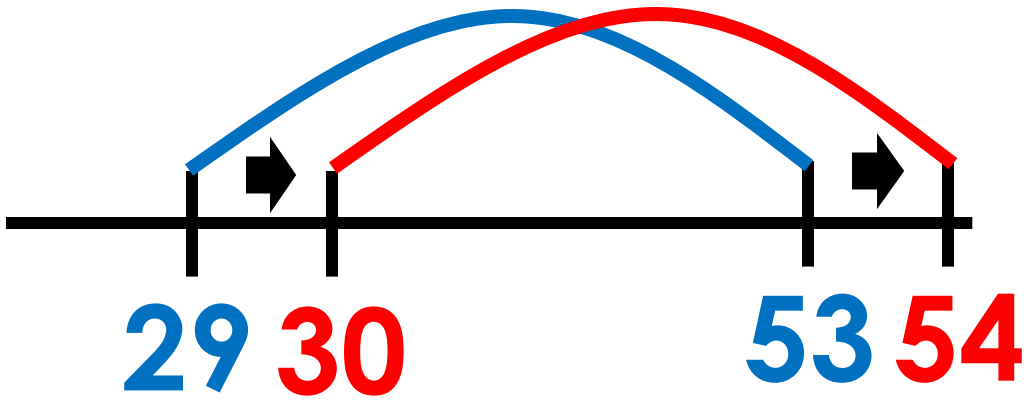
$$100 - 20 - 6 = \boxed{74}$$

Subtraction Strategy

# Keeping a Constant Difference

**Adjust both numbers in the same way to create a friendly number to keep the difference constant.**

$$53 - 29 = 54 - 30 = \boxed{24}$$



Subtraction Strategy

# Adjust One Number to Create an Easier Problem

**Adjust one number to make a friendly number**

$$43 - 29$$

$$+1$$

$$43 - 30 = 13$$

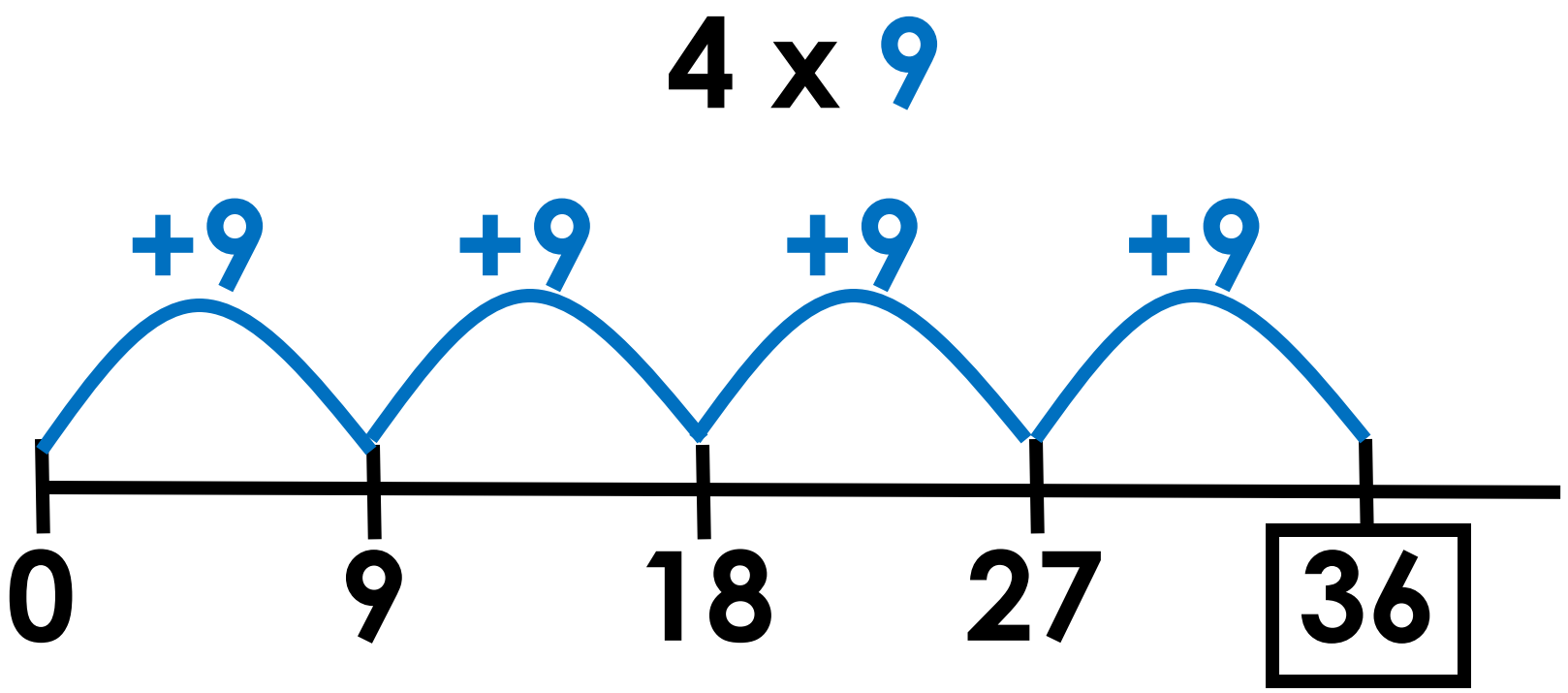
$$13 + 1 = \boxed{14}$$

# Multiplication Strategies

Multiplication Strategy

# Repeated Addition

**Repeat the addition of one factor by the number of times the other factor**



Multiplication Strategy

# Making Friendly Numbers

**Partition to use a friendly number to solve a more challenging problem**

$$3 \times 37$$

$$(3 \times 40) - (3 \times 3)$$

$$3 \times 40 = 120$$

$$3 \times 3 = 9$$

$$120 - 9 = \boxed{111}$$

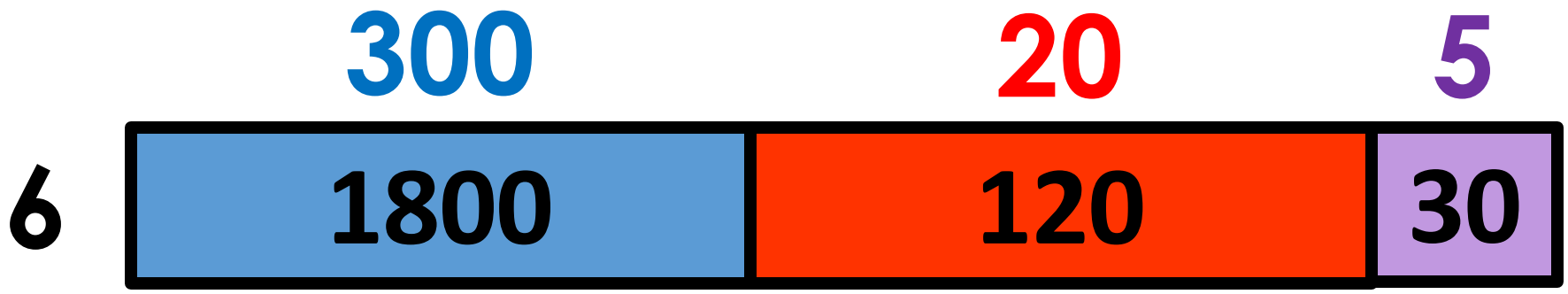
Multiplication Strategy

# Partial Products

**Partition one factor using place value and use distributive property to multiply**

$$6 \times 325$$

$$6 \times (300 + 20 + 5)$$




$$1800 + 120 + 30 = \boxed{1950}$$

Multiplication Strategy

# Breaking Factors into Smaller Factors

Break a factor into smaller factors and apply the associative property

$$8 \times 25$$

So… $2 \times 4 \times 25 =$

$$2 \times 100 = 200$$

Multiplication Strategy

# Doubling and Halving

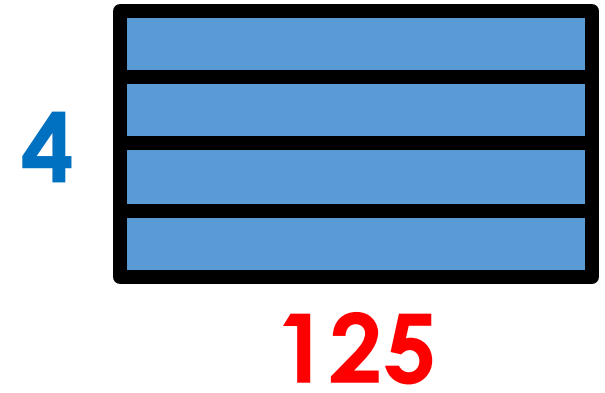
**Double one factor and halve the other to simplify a problem**

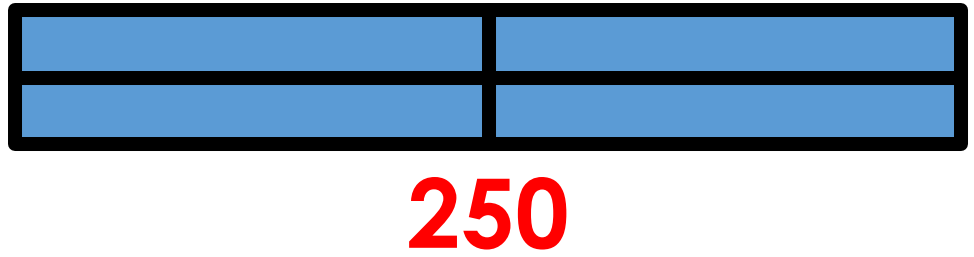
$4 \times 125$

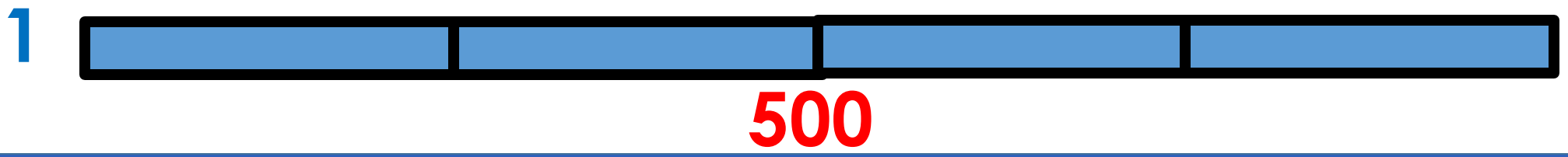
$= 2 \times 250$

$= 1 \times 500$

$= \boxed{500}$



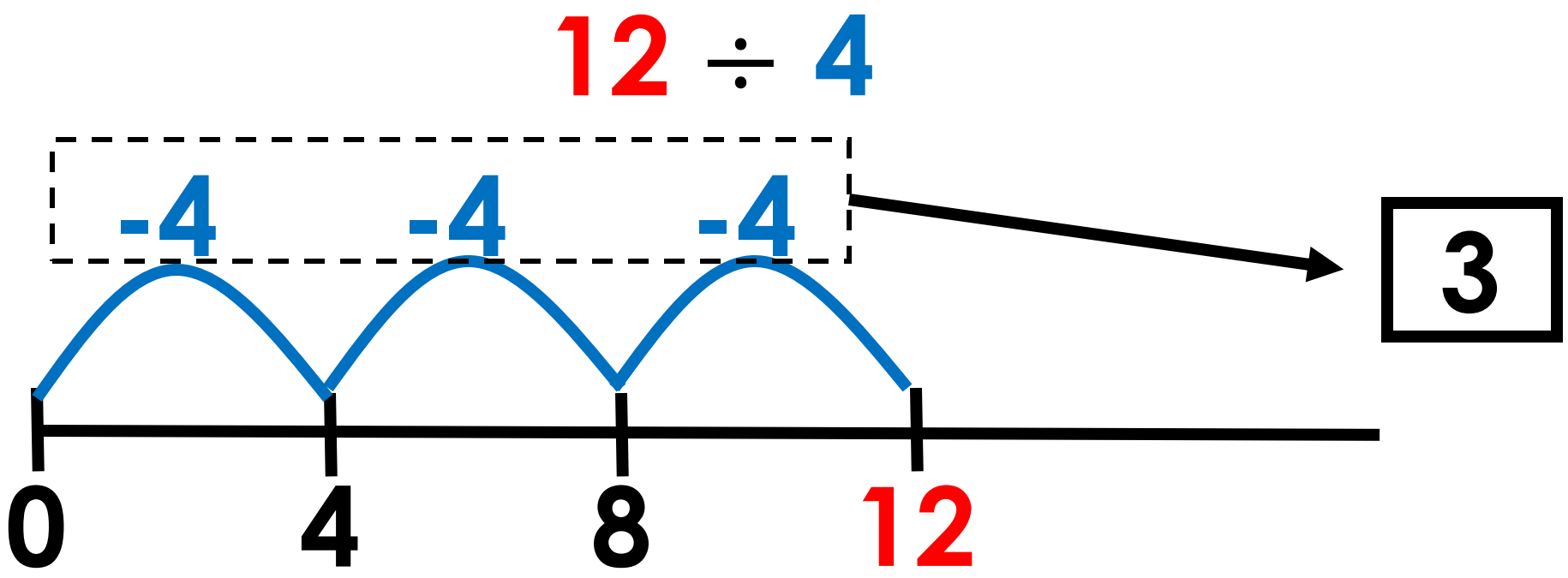



# Division Strategies

Division Strategy

# Repeated Subtraction

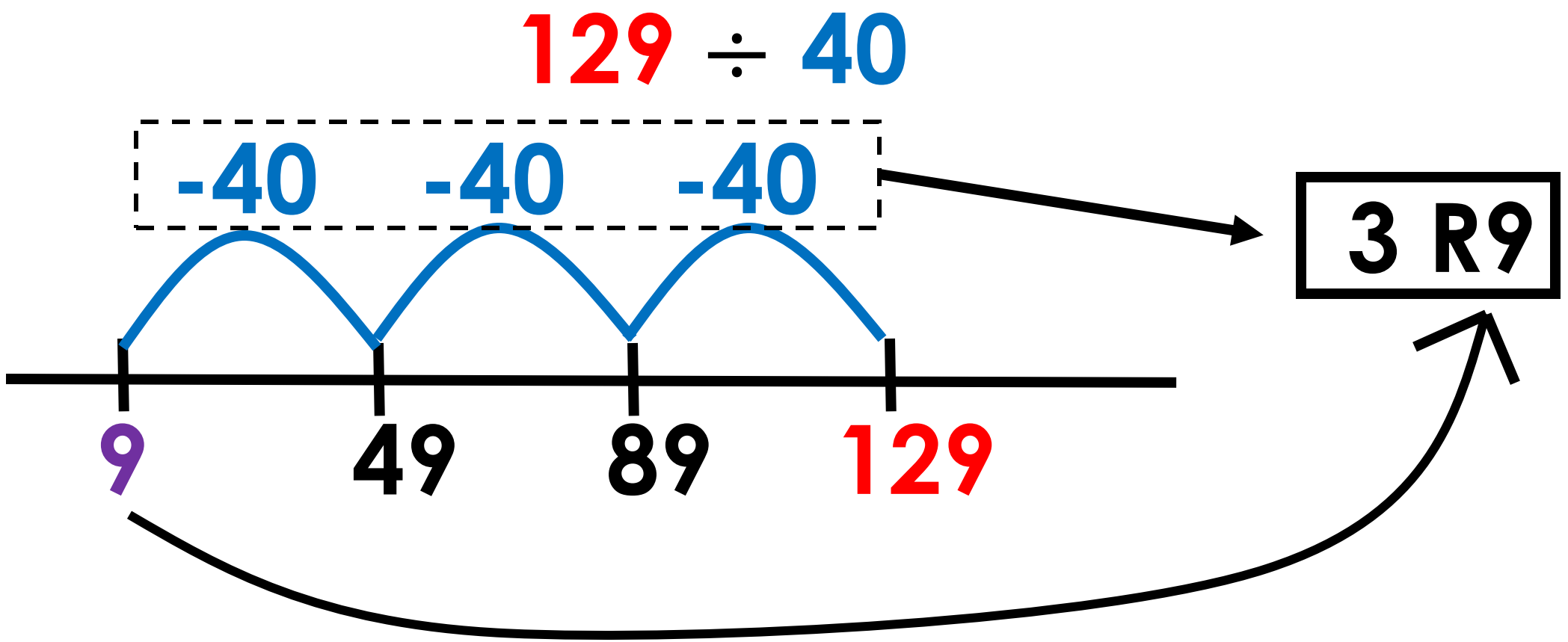
**Repeat the subtraction of the divisor until the difference is less than the divisor**



Division Strategy

# Repeated Subtraction

**Repeat the subtraction of the divisor until the difference is less than the divisor**



Division Strategy

# Partial Quotients

**Partition the dividend into parts easily divisible by the divisor**

$$56 \div 4$$


Think...

$$(40 \div 4) + (16 \div 4)$$


$$10 + 4 = 14$$

Division Strategy

# Partial Quotients

**Partition the dividend into parts easily divisible by the divisor**

$$58 \div 4$$


Think...

$$(40 \div 4) + (16 \div 4) + 2$$


$$10 + 4 = 14\ R2$$

Division Strategy

# Multiplying Up

**Use the multiples of the divisor to find the total dividend**

$$65 \div 5$$

$$5 \times 10 = 50$$

$$5 \times 3 = 15$$

$$5 \times 13 = 65$$

$$65 \div 5 = \underline{13}$$

Division Strategy

# Proportional Reasoning

**Divide the dividend and the divisor by the same amount to simplify the problem**

$$192 \div 8$$

$\div 2 \quad \div 2$

$$= 96 \div 4$$

$\div 2 \quad \div 2$

$$= 48 \div 2$$

$\div 2 \quad \div 2$

$$= 24 \div 1 = \boxed{24}$$

$$\frac{192}{8} = \frac{96}{4} = \frac{48}{2} = 24$$