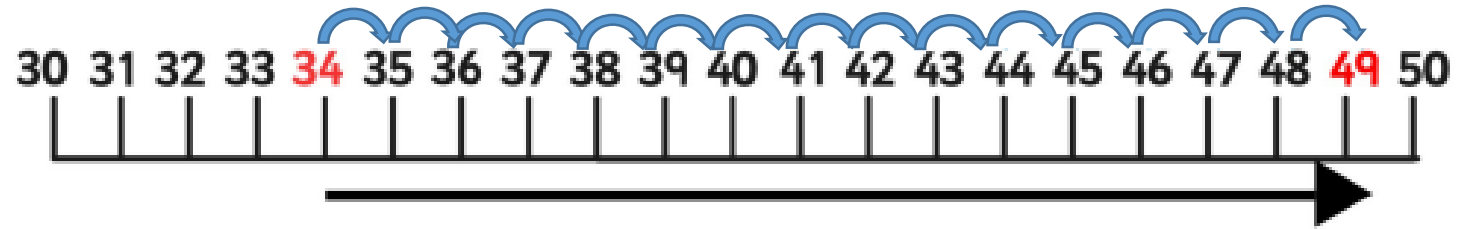


# Counting on

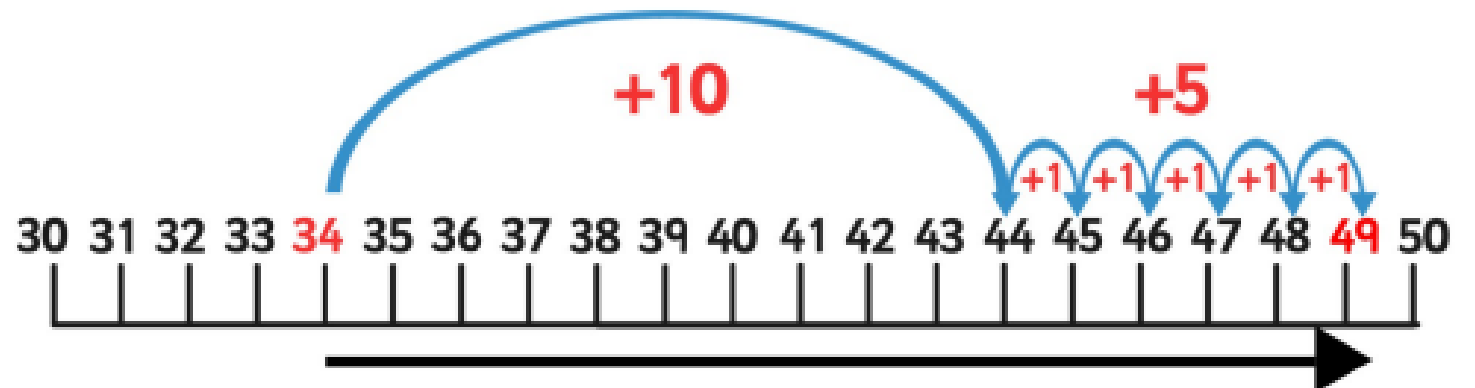
Start on the larger number and count on in ones.

$$34 + 15 =$$



This can be developed so the second number is partitioned into smaller numbers to improve fluency.

$$34 + 15 =$$

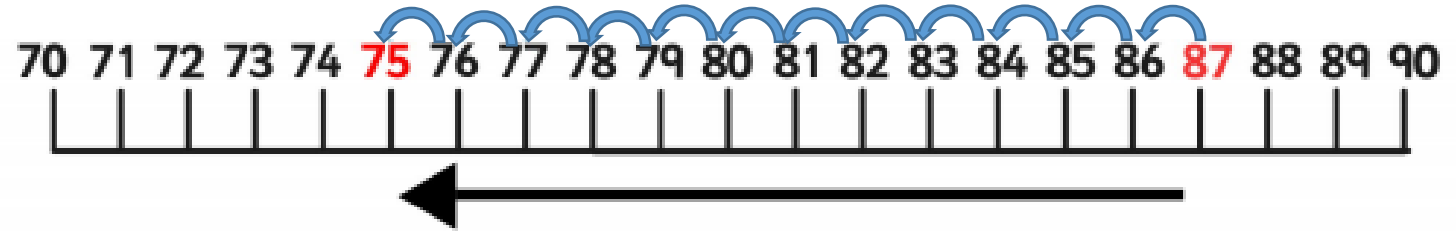


# Counting back

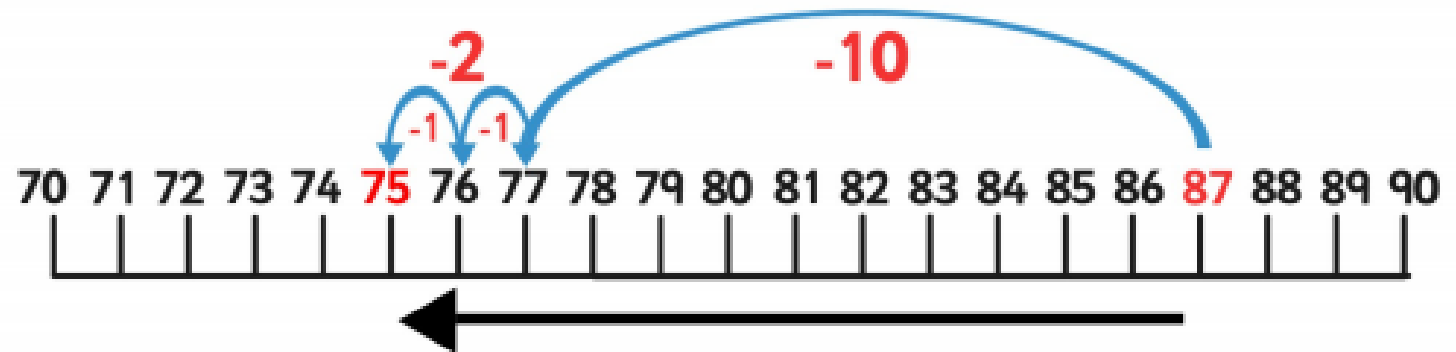
Start on the larger number and count back in ones.

This can be developed so the second number is partitioned into smaller numbers to improve fluency.

$$87 - 12 =$$



$$87 - 12 =$$



# Number bonds to 10, 100, 1000

Knowing number bonds to a 'whole ten' can be used when adding and subtracting to make mental steps more manageable.

This can be developed to support number bonds to hundreds, thousands etc.

$$\begin{aligned}230 + 670 &= \\230 + 70 &= 300 \\300 + 600 &= 900\end{aligned}$$

$$\begin{array}{c}23 + 67 = \\ \swarrow \quad \searrow \\ 30\end{array}$$

$$30 + 60 = 90$$

$$74 - 24 =$$

$$74 - 4 = 70$$

$$70 - 20 = 50$$

# Number facts within 20 (Part, Part, Whole)

Knowing that  $8 + 9 = 17$   
will help me to solve  
calculations such as;

17	
8	9

$17 - 8 = ?$

Or

$17 - ? = 9$

Or

$? - 9 = 8$

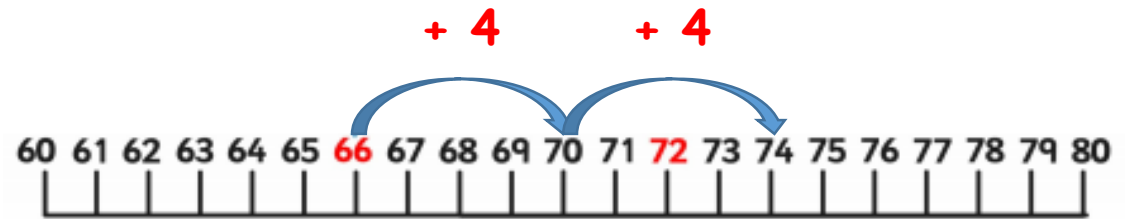
# Make ten...and then some

Make a 'whole ten' then add or subtract the rest.

$$66 + \textcircled{8}$$

↓ ↘

$$66 + 4 + 4 = 74$$



$$72 - 6 =$$

$$72 - 2 = 70 \quad \text{so} \quad 72 - 2 - 4 = 66$$

$$72 - \textcircled{6}$$

↓ ↘

$$72 - 2 - 4 = 66$$



# Partitioning (+/-)

Look at the calculation and split the numbers into more manageable numbers to add or subtract.

Split the numbers into tens and ones and work them out separately, then add the totals back up.

$89 + 45$   
 $80 + 40 = 120$        $9 + 5 = 14$   
 $120 + 14 = 134$

$137 - 43$   
 $130 - 40 = 90$        $7 - 3 = 4$   
 $90 + 4 = 94$

# Partitioning (x)

Look at the calculation and split the numbers into more manageable numbers to multiply

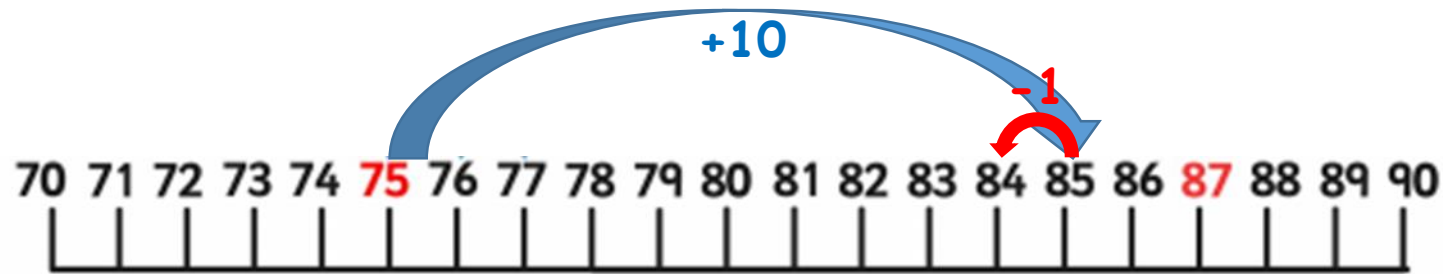
Split the numbers into tens and ones and work them out separately, then add the totals back up.

The diagram illustrates the partitioning method for multiplication. It shows the equation  $24 \times 12$  at the top. Two vertical arrows point down from the '24' to '20' and from the '12' to '12' in the equation  $20 \times 12 = 240$ . Two blue arrows originate from the '24' and '12' of the top equation and point to the '4' and '12' of the equation  $4 \times 12 = 48$ . Two orange arrows originate from the '240' and '48' of the middle equations and point to the '240' and '48' of the final equation  $240 + 48 = 288$ .

$$\begin{array}{l} 24 \times 12 \\ \downarrow \quad \downarrow \\ 20 \times 12 = 240 \end{array} \quad \begin{array}{l} 4 \times 12 = 48 \end{array}$$
$$240 + 48 = 288$$

# Compensating (+/-)

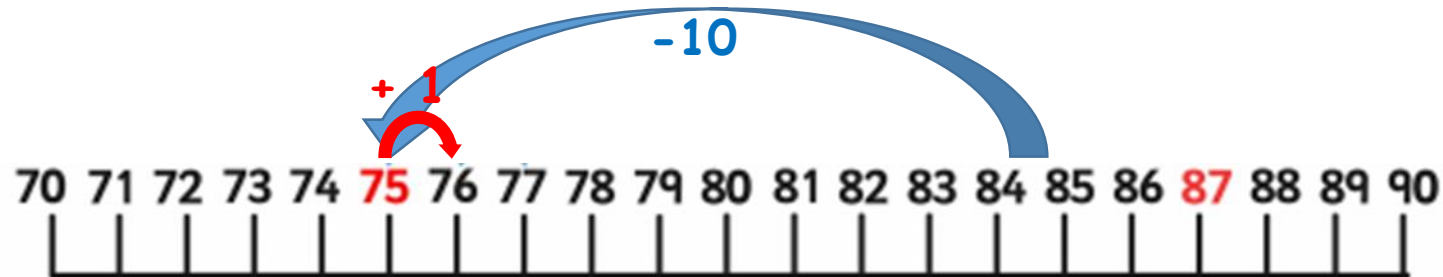
When adding a number ending in 9 round to nearest 'whole ten' then subtract 1.



$$75 + 9 = 84$$

$$75 + 10 - 1 = 84$$

When subtracting 9 round to nearest 'whole ten' then add 1.



$$85 - 9 = 76$$

$$85 - 10 + 1 = 76$$

# Known facts/looking for patterns

If I know that  $7 + 6 = 13$  therefore...

I know that  $70 + 60 = 130$

If I know that  $15 + 7 = 8$  therefore...

I know that  $150 + 70 = 80$

If I know that  $4 \times 8 = 32$  therefore...

I know that  $40 \times 8 = 320$

If I know that  $56 \div 8 = 7$  therefore...

I know that  $560 \div 8 = 70$