

# Using Commutativity in Mental Calculations

Look at the following questions. Decide if you can use the principle of commutativity (doing the multiplication in any order) to make the calculations easier to answer. If you can't make them any easier just change the order anyway!

<b>e.g.</b> $2 \times 9 \times 5 =$	Five multiplied by two equals ten – doing that first makes any subsequent calculation easy! $5 \times 2 \times 9 = 10 \times 9 = 90$
<b>e.g.</b> $9 \times 2 \times 8 =$	$9 \times 8$ is from a multiplication table you may already know. You can finish the calculation by just doubling the answer. $9 \times 8 \times 2 = 72 \times 2 = 144$

1. $12 \times 2 \times 5 =$	
2. $2 \times 13 \times 2 =$	
3. $5 \times 10 \times 4 =$	
4. $5 \times 5 \times 2 =$	
5. $5 \times 4 \times 5 =$	

<b>6.</b> $12 \times 5 \times 10 =$	
<b>7.</b> $14 \times 5 \times 2 =$	
<b>8.</b> $7 \times 13 \times 0 =$	
<b>9.</b> $2 \times 2 \times 11 \times 2 =$	
<b>10.</b> $10 \times 136 \times 10 =$	
<b>11.</b> $1 \times 2 \times 3 \times 4 \times 5 =$	

## Using Commutativity in Mental Calculations:

### Answers

---

question	answer
1	$2 \times 5 \times 12 = 10 \times 12 = 120$
2	$13 \times 2 \times 2 = 26 \times 2 = 52$
3	$5 \times 4 \times 10 = 20 \times 10 = 200$
4	$5 \times 2 \times 5 = 10 \times 5 = 50$
5	$5 \times 5 \times 4 = 25 \times 4 = 100$
6	$5 \times 12 \times 10 = 60 \times 10 = 600$
7	$5 \times 2 \times 14 = 10 \times 14 = 140$
8	$0 \times 13 \times 7 = 0 \times 7 = 0$
9	$2 \times 2 \times 2 \times 11 = 8 \times 11 = 88$
10	$10 \times 10 \times 136 = 100 \times 136 = 13\,600$
11	$2 \times 5 \times 3 \times 4 \times 1 = 10 \times 3 \times 4 \times 1 = 10 \times 12 \times 1 = 120$