

Year 4 – multiply three numbers using commutativity

Learning Reminders

Commutative property: like addition, multiplication can get to the same answer even with the numbers in a different order. E.g. $3 + 5 + 7 = 15$

We can also change it so that it is easier to add, for e.g. $7 + 3 = 10 + 5 = 15$

Look at this multiplication example:

$$2 \times 9 \times 5 = 90.$$

We would normally do $2 \times 9 = 18$ and then multiply it by 5. (18×5 might be difficult to do especially mentally).

But we can change the numbers around to our advantage, look at this:

$$9 \times 5 = 45 \quad \text{and then} \quad 45 \times 2 = 90. \quad \text{Wasn't that much easier?}$$

Multiply three numbers, recognising where commutativity can simplify a calculation, e.g. $2 \times 6 \times 5 = 6 \times 10$.

$$4 \times 7 \times 5$$

How could we change the order of this multiplication to help simplify the calculation?

e.g. $4 \times 5 \times 7$, i.e. working out 20×7 .

$$7 \times 2 \times 8$$

How could we change the order of this multiplication to help simplify the calculation?

$7 \times 8 \times 2$ is probably a simpler order to work with because the second step involves finding 56×2 , rather than 14×8 .

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Practice Sheet Mild

Multiplying three numbers together



- Choose three numbers.
- Decide what order would be most efficient to multiply them together. Write them in that order and find the product.
- Repeat for at least seven more trios of numbers.

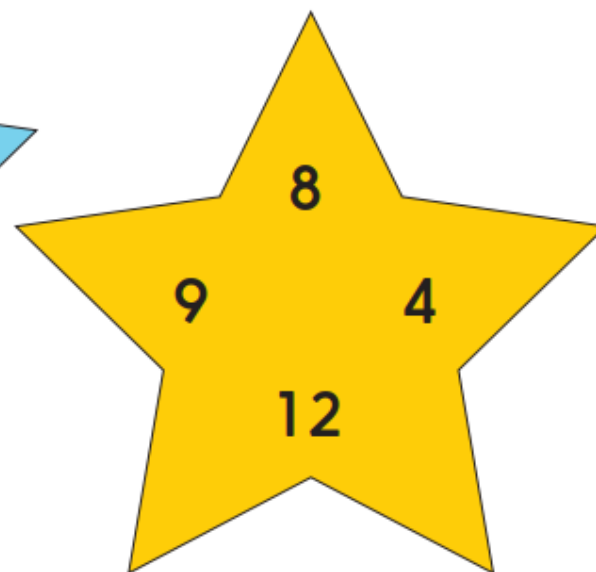
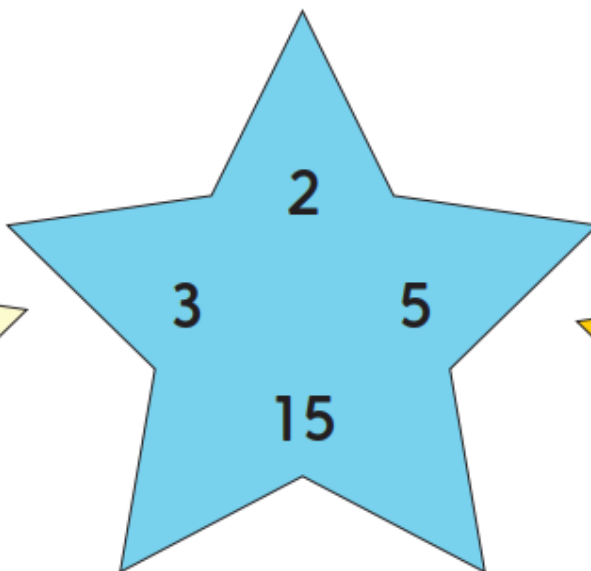
Challenge

- Can you find a trio with a product of 60?
- Can you find a trio with a product of 270?

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Practice Sheet Hot Multiplying three numbers together

Choose one number from each of the 3 stars.
Decide the easiest order to multiply them together.
Repeat as many times as you can.



Challenge

Find the missing numbers:

$$\square \times 7 \times 6 = 420$$

$$8 \times 11 \times \square = 440$$

$$3 \times \square \times 5 = 135$$