

More Mental Math Strategies

You can rearrange a problem to make it easier.

Consider this problem: 256×4

We can think of 256 as:

$$(200 + 50 + 6)$$

Now we just multiply each of the addends by 4.

$$256 \times 4$$

Our new problem looks like this:

$$4(200 + 50 + 6)$$

The "4" gets *distributed* over each of the addends. This is called the **distributive property of multiplication over addition**.

$$4(200 + 50 + 6)$$

Distributing the 4 over each of the addends gives us

$$(4 \times 200) + (4 \times 50) + (4 \times 6)$$

$$800 + 200 + 24$$

$$1,024$$

Try this one: 453×9

First, think of 453 as $(400 + 50 + 3)$

Use the distributive property to distribute the 9 over each of the addends.

$$9(400 + 50 + 3)$$

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Multiply each of the addends by 9,
then find the sum.

$$(9 \times 400) + (9 \times 50) + (9 \times 3)$$

$$3600 + 450 + 27$$

$$4050 + 27$$

$$4,077$$

$$45 \times 14$$

Think of 45 as $(40 + 5)$ and 14 as $(10 + 4)$.

Set the problem up like this:

$$10(40 + 5) + 4(40 + 5)$$

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Now, use the distributive property to multiply $(40 + 5)$ by both 10 and 4.

$$(400 + 50) + (160 + 20)$$

$$450 + 180$$

$$450 + 50 + 130$$

$$500 + 130 = 630$$

Now you try it.

Write 5 multiplication problems and use the rearranging strategy to solve them.

Use words to explain how to apply the strategy to solve the problem.