3 Dividing Two-Digit Numbers

Strategies for Dividing

A variety of strategies can be used for dividing small numbers.
One way is to think of a related multiplication fact.
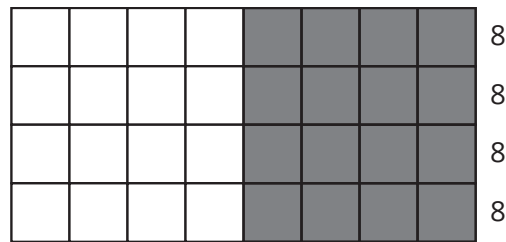For example, you can figure out that $32 \div 4 = 8$ if you know that $4 \times 8 = 32$.

Another strategy for dividing is to break the greater number into parts, divide each part, and then add.

For example, you can calculate $32 \div 4$ by breaking 32 into $16 + 16$.
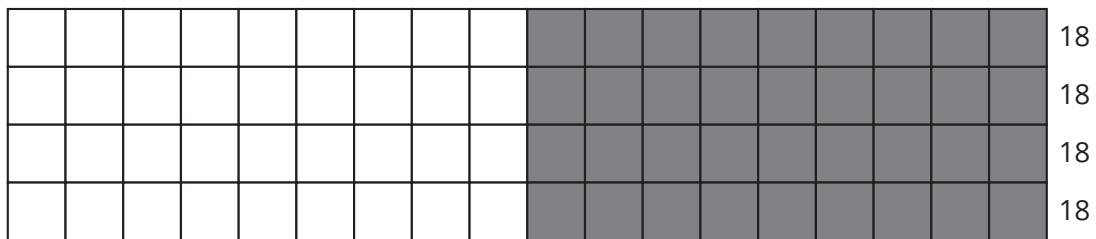$32 \div 4 = 16 \div 4 + 16 \div 4$
That's $4 + 4 = 8$.
$32 \div 4 = 8$

The strategy of breaking numbers apart can be used with greater numbers as well.

• For example, to calculate $72 \div 4$, you can break 72 into $36 + 36$ and divide each part by 4.
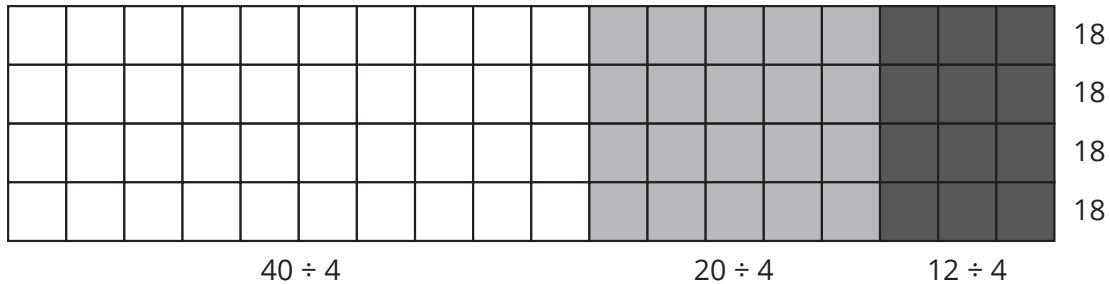 $72 \div 4 = 36 \div 4 + 36 \div 4$
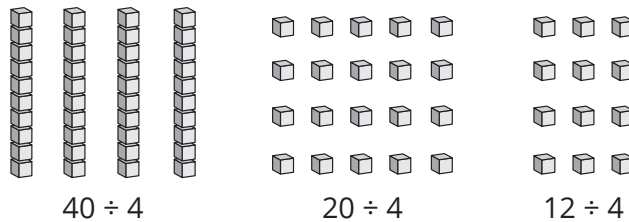 That's $9 + 9 = 18$.
  $72 \div 4 = 18$

Strategies for Dividing (continued)

• To calculate 72 ÷ 4, you can also think of 72 as 40 + 20 + 12.
72 ÷ 4 = 40 ÷ 4 + 20 ÷ 4 + 12 ÷ 4
That's 10 + 5 + 3 = 18.
72 ÷ 4 = 18

40 ÷ 4   20 ÷ 4   12 ÷ 4

10 + 5 + 3 = 18

40 ÷ 4   20 ÷ 4   12 ÷ 4

10 + 5 + 3 = 18

Notice that the way you divide up the greater number should make the dividing easy to do in your head. In the examples above, the parts of 72 can all be divided evenly by 4.

• You can also take half of both numbers without changing the answer. This is helpful only if you can figure out what half is fairly easily.

For example, 72 ÷ 4 = 36 ÷ 2.
But 36 ÷ 2 = 18 ÷ 1, and that's just 18.

This works because if half the people share half the things, it's the same as all the people sharing all the things.

Estimating Helps

To see if the <u>quotient</u> you calculated is reasonable, you can estimate. For example, 72 ÷ 4 is almost 80 ÷ 4 = 20. The answer 18 is close to the estimate of 20, so the answer feels right.

If you were thinking about 62 ÷ 4, you might realize that if 4 people share 62, they each get less than if 3 people share 62, so you know the answer must be less than about 20 (60 ÷ 3).

When to Divide

Remember that you divide when you know a total and want to know either the number of equal groups or the size of equal groups.

Definitions

quotient: the result of dividing; for example, in 80 ÷ 5 = 16, 16 is the quotient