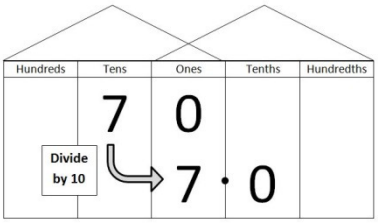
Divide by 10 using place value. *Stg 5/E6 x/÷* Name: _____

When we need to divide something by 10, we can go back to our old friend – **place value!** Understanding place value allows us to divide by 10, or 100 or even 1000 without even having to 'do' much maths! *(Yay, I can let my poor brain have a rest!)* True, but you do need to know what's going on. Say if you are asked to divide **70** by **10** (**70 ÷ 10**, how many **10s in 70**, or how many **groups of 10** are in **70** – all the same question). You might be tempted to say 'take away the zero!' to get the answer. But if you take nothing away from something, you still have the same something right? So what is really happening?



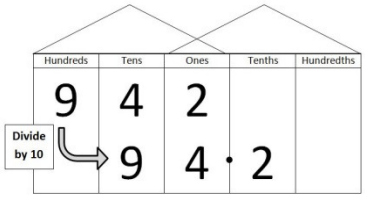
Alright, I'll tell you. The number is shifting it's place values – in 70, the 'ones' place is being kept by a zero (that's its job in this case). When we divide that big number we're 'downgrading' it, so that each number is 10 times smaller, and so now fits in the column for smaller values. The zero that was place holding in the ones column, is now holding a place in the tenths column, and looks like 7.0 - we usually don't show the 'point zero' though, it's not really needed. **E.g. 70 ÷ 10 = 7,**

There is a bit of a trick though – you must not change the order of your original number!

E.g. 4320 ÷ 10 = 432, 20050 ÷ 10 = 2005 Have a try for yourself:

1. 90 ÷ 10 = __. 900 ÷ 10 = ___ . 9000 ÷ 10 = _____
2. 80 ÷ 10 = __. 800 ÷ 10 = ___ . 8000 ÷ 10 = _____
3. 60 ÷ 10 = __. 600 ÷ 10 = ___ . 6000 ÷ 10 = _____
4. 30 ÷ 10 = __. 300 ÷ 10 = ___ . 3000 ÷ 10 = _____
5. 120 ÷ 10 = __. 1200 ÷ 10 = ___ . 12000 ÷ 10 = _____
6. 340 ÷ 10 = __. 3400 ÷ 10 = ___ . 34000 ÷ 10 = _____
7. 630 ÷ 10 = __. 6300 ÷ 10 = ___ . 63000 ÷ 10 = _____
8. 780 ÷ 10 = __. 7800 ÷ 10 = ___ . 78000 ÷ 10 = _____
9. 910 ÷ 10 = __. 9100 ÷ 10 = ___ . 91000 ÷ 10 = _____
10. 880 ÷ 10 = __. 8800 ÷ 10 = ___ . 88000 ÷ 10 = _____

Ok, but what if the number you start with has a value in the **ones**? No worries:



12 ÷ 10 = **1.2** 56 ÷ 10 = ___ 84 ÷ 10 = __

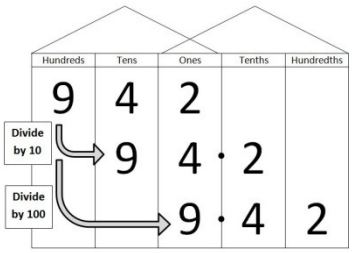
304 ÷ 10 = ___ 762 ÷ 10 = ___ 7892 ÷ 10 = ___

697 ÷ 10 = ___ 809 ÷ 10 = ___ 559 ÷ 10 = ___

Dave Moran 2015

Divide by 10 or larger using place value. *Stg 6 x/÷* Name:_____

We've learned that dividing by 10 is pretty easy right? (*Yep, with you there*) So, naturally the next question is; 'can we use the same trick for bigger or more complicated numbers?'
Answer: Y'all are darn-tootin' y'can! (That's old-west for 'yes')

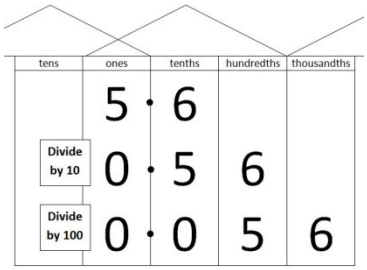


As always with place value, the main trick is to **keep the number in order.** Especially when you are dividing or multiplying by 10s, 100s, 1000s or bigger.

Let's have a bit of a go with some easy ones to start with:

E.g 1234 ÷ 10 = 123.4 1234 ÷ 100 = 12.34 1234 ÷ 1000 = 1.234

1. 2435 ÷ 10 = _____ 2435 ÷ 100 = _____ 2435 ÷ 1000 = _____
2. 2089 ÷ 10 = _____ 2089 ÷ 100 = _____ 2089 ÷ 1000 = _____
3. 6507 ÷ 10 = _____ 6507 ÷ 100 = _____ 6507 ÷ 1000 = _____
4. 5923 ÷ 10 = _____ 5923 ÷ 100 = _____ 5923 ÷ 1000 = _____
5. 9890 ÷ 10 = _____ 9890 ÷ 100 = _____ 9890 ÷ 1000 = _____
6. 1000 ÷ 10 = _____ 1000 ÷ 100 = _____ 1000 ÷ 1000 = _____



Tip: count the zeros in the 'divisor' (the number you're dividing by) and just shift your place value that many times. E.g. divide by 1**00**? Slide the number along **2** places to the right!

You can use this technique with small decimal numbers too. You might get asked something like 5.6 ÷ 100. You can use the same trick – just slide it along two places to the right. 5.6 ÷ 100 = 0.056 - just remember to put a zero in the ones column as a place holder (yes, we do really need to)

7. 3.7 ÷ 10 = 0.___ 3.7 ÷ 100 = 0.0___ 3.7 ÷ 1000 = 0.0037
8. 4.2 ÷ 10 = _____ 4.2 ÷ 100 = _____ 4.2 ÷ 1000 = 0.00__
9. 3.0 ÷ 10 = _____ 3.0 ÷ 100 = _____ 3.0 ÷ 1000 = _____
10. 6.9 ÷ 10 = _____ 6.9 ÷ 100 = _____ 6.9 ÷ 1000 = _____
11. 7.5 ÷ 10 = _____ 7.5 ÷ 100 = _____ 7.5 ÷ 1000 = _____
12. 54.6 ÷ 10 = _____ 54.6 ÷ 100 = _____ 54.6 ÷ 1000 = _____
13. 0.3 ÷ 10 = _____ 0.3 ÷ 100 = _____ 0.3 ÷ 1000 = _____
14. 0.8 ÷ 10 = _____ 0.8 ÷ 100 = _____ 0.8 ÷ 1000 = _____
15. 98.7 ÷ 10 = _____ 98.7 ÷ 100 = _____ 98.7 ÷ 1000 = _____

Q: What did one maths book say to the other?
A: Don't bother me I've got my own problems!

Dave Moran 2015