Divide by 6. *Stg E6/6 x/÷*

Name: _____

The best way by far to get your head around dividing by 6 is know your basic facts. Sorry, but there you go. There are some hints that can help though. If a number is **Both** divisible by three (the digits of any number divisible by 3 will add up to a multiple of 3) **And** an even number (ending in 0, 2, 4, 6 or 8) then it is divisible by 6 too. For example, 312 is an even number and if you **add up all the digits** they equal six, which is a multiple of three. So we know 312 is divisible by 6. We'll start with the basic ones first though, I think.

E.g. What is **18 ÷ 6**? We know that **3 x 6 = 18**, so using the family of facts, we know 18 ÷ 6 = **3**
So, let's get on with it. Try these ones to build up your division basic facts:

1.	6 x 4 = ___	So __ ÷ 6 = 4	and	___ ÷ 4 = 6
2.	6 x 7 = ___	So __ ÷ 6 = 7	and	___ ÷ 7 = 6
3.	6 x 5 = ___	So __ ÷ 6 = 5	and	___ ÷ 5 = 6
4.	6 x 9 = ___	So __ ÷ 6 = 9	and	___ ÷ 9 = 6
5.	6 x 11 = ___	So __ ÷ 6 = 11	and	___ ÷ 11 = 6
6.	6 x 2 = ___	So __ ÷ 6 = 2	and	___ ÷ 2 = 6
7.	6 x 8 = ___	So __ ÷ 6 = 8	and	___ ÷ 8 = 6
8.	6 x 12 = ___	So __ ÷ 6 = 12	and	___ ÷ 12 = 6
9.	6 x 6 = ___	So __ ÷ 6 = 6	and	___ ÷ 6 = 6
10.	6 x 10 = ___	So __ ÷ 6 = 10	and	___ ÷ 10 = 6

The numeral '6' that we use, was adapted from Arabic script hundreds of years ago. The Romans used a different system so their 'six' looks like this: **VI**

(V=5, I = 1, 5 + 1)

Pretty straight-forward once you're into it, right? Ok, let's look at some where the **place value** is different. You can use the same basic facts to help with these too! (Handy!)

E.g	60 ÷ 6 = <u>10</u>	600 ÷ 6 = <u>100</u>	5.0 ÷ 6 = <u>1.0</u>	6000 ÷ 6 = <u>1000</u>
1.	36 ÷ 6 = __	360 ÷ 6 = ____	3.6 ÷ 6 = __.__	3600 ÷ 6 = _____
2.	72 ÷ 6 = __	720 ÷ 6 = ____	7.2 ÷ 6 = __.__	7200 ÷ 6 = _____
3.	18 ÷ 6 = __	180 ÷ 6 = ____	1.8 ÷ 6 = __.__	1800 ÷ 6 = _____
4.	30 ÷ 6 = __	300 ÷ 6 = ____	3.0 ÷ 6 = __.__	3000 ÷ 6 = _____
5.	12 ÷ 6 = __	120 ÷ 6 = ____	1.2 ÷ 6 = __.__	1200 ÷ 6 = _____
6.	42 ÷ 6 = __	420 ÷ 6 = ____	4.2 ÷ 6 = __.__	4200 ÷ 6 = _____
7.	24 ÷ 6 = __	240 ÷ 6 = ____	2.4 ÷ 6 = __.__	2400 ÷ 6 = _____
8.	48 ÷ 6 = __	480 ÷ 6 = ____	4.8 ÷ 6 = __.__	4800 ÷ 6 = _____
9.	66 ÷ 6 = __	660 ÷ 6 = ____	6.6 ÷ 6 = __.__	6600 ÷ 6 = _____
10.	54 ÷ 6 = __	540 ÷ 6 = ____	5.4 ÷ 6 = __.__	5400 ÷ 6 = _____

How easy was that? The good news is that it gets more interesting from here. Once you've got the basic facts bolted into your noggin, we can start to do cool stuff like 'long division'. Now that'll make an impression at the school social.

Dave Moran 2015

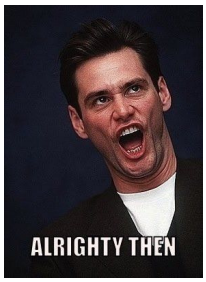
Divide by 6. *Stg 6/E7 x/÷*

Name: _____

By now, we've begun to get a good handle on the basic facts of dividing by 6.We can comfortably chop up multiples of 6 up to 72, and also play with place value. *Ok, but what if the number I'm dividing doesn't fit? Like if it's **not** a multiple of 6*? Now it starts to get interesting, because we start to use 'remainders' – the leftover bits.

E.g **20 ÷ 6 = ??** Oh no, it doesn't fit! We know that 18 ÷ 6 = 3, and that 24 ÷ 6 = 4. Alrighty. We just choose the one that fits inside **20** (18), then take away 18 from 20 (**20 – 18 = 2**)
So **20 ÷ 6 = 3 r2** That's 3 with a 'remainder' of 2. Well, that makes sense! Let's try:

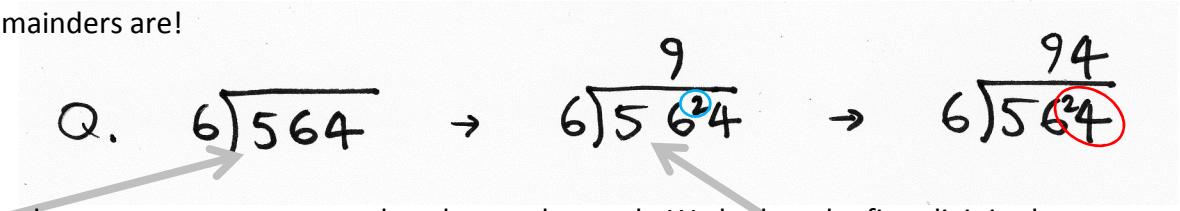
1.	8 ÷ 6 = __ r __	6 x ___ = 6	8 - 6 = ___ (remainder)
2.	15 ÷ 6 = __ r __	6 x ___ = 12	15 - 12 = ___ (r)
3.	16 ÷ 6 = __ r __	6 x ___ = 12	16 - 12 = ___ (r)
4.	29 ÷ 6 = __ r __	6 x ___ = 24	29 - 24 = ___ (r)
5.	26 ÷ 6 = __ r __	6 x ___ = 24	26 - 24 = ___ (r)
6.	64 ÷ 6 = __ r __	6 x ___ = 60	64 - 60 = ___ (r)
7.	76 ÷ 6 = __ r __	6 x ___ = 72	76 - 72 = ___ (r)
8.	10 ÷ 6 = __ r __	6 x ___ = 6	10 - 6 = ___ (r)
9.	46 ÷ 6 = __ r __	6 x ___ = 42	46 - 42 = ___ (r)
10.	50 ÷ 6 = __ r __	6 x ___ = 48	50 - 48 = ___ (r)



You'll notice that the remainders are either 1, 2, 3, 4 or 5. It can't be 6 or more or else it becomes another multiple.

Why do we need to know about remainders? They help us with the next level of chopping up, called 'fast long division'. Fast long division can help us to divide any number by 6 (or whatever). All we need is our basic facts and to know what remainders are!

Have a squiz at this:



First you'll notice that the answer goes on top, rather than underneath. We look at the first digit in the dividend; **5** – can we put 6 in it? No, so go along to the next digit can we fit 6 into **56**? Yep, **9** times with **2** leftover. The remainder of 2 slips in next to the **4**, to make **24**. Can we fit 6 into 24? Yep, **4** times! This all works because of our old buddy place-value! On that note, make sure your answer goes above the right digit.

The nice thing is that you can fit the whole problem in a tiny space. Have a try with these ones.

a. 6)546 b. 6)672 c. 6)984 d. 6)438

e. 6)7842 f. 6)9042 g. 6)3484 (r) h. 6)4571 (r)

Don't forget to pop in the remainder at the end! **Q**. How would you turn the remainder into a decimal?

Dave Moran 2015