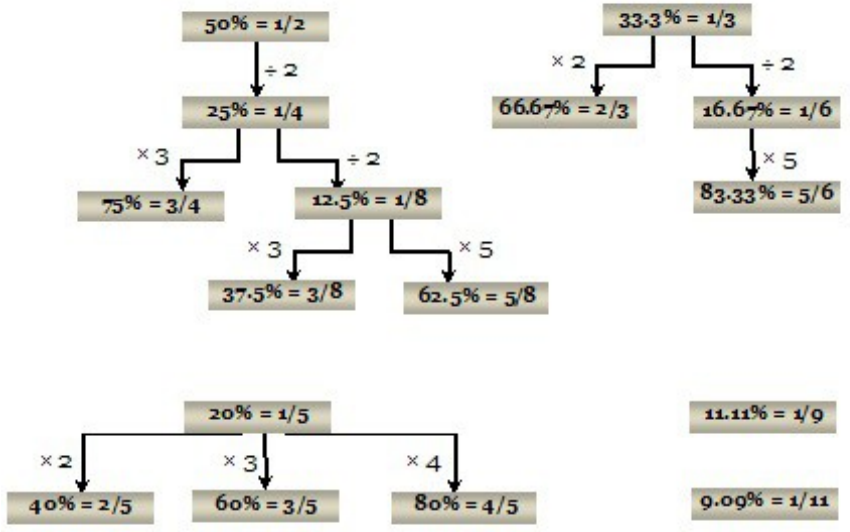
Today, I will take up a relatively simple topic – Percentages. It is extremely relevant for GMAT and your everyday life. For the critics amongst you, let me give an example: What does a 20% sale with an additional 25% off on the $85 sweater that you have your eye on mean to you? Rather than flipping open your HP12C, blink your eyes and the answer will swim in front of you… Uhh… I mean, after I tell you what you have to do in that blink (There is always a catch!).
Let me begin by saying that a percentage is a fraction. A fraction where the denominator is always 100, but just a fraction nevertheless. 50% means 50 per 'cent' (cent being 100) or 50/100 or 50 out of every 100.

So, 50% = 50/100 = ½
If I ask you what the 50% of 240 is, what will you do?
(50/100)*240 or (1/2)*240?
I don't think I need to explain why the second representation is easier to handle. A fraction in its lowest form usually helps us to calculate faster. If this makes sense, think about 12.5% i.e. 12.5/100. Let's say, I tell you that 12.5/100 is equal to 1/8. Now, if you had to find 12.5% of 64, what would be easier to do: (12.5/100) * 64 or (1/8) * 64?
For this future ease, can you learn up some percent fraction equivalents today? In the interest of furtherance of this post, let's assume you answered with a resounding yes!



So now, if someone asks you, what is 60% of 350, all you should do is (3/5) * 350 = 210.
What if instead, the question is: If you increase 105 by 20%, what do you get?
You might be tempted to find the 20% of 105 and add it to 105. Something like this: 105 + (20/100) * 105 = 105 + 21 = 126. Or if you have been paying attention, then you might do it like this: 105 + (1/5) * 105 = 105 + 21 = 126.
It is still not optimum! You did the calculation in two steps: In step 1, you found the 1/5th of 105. In step 2, you added the 1/5th to 105. Can we instead club it in a single step?
105 + (1/5) * 105 = 105 (1 + 1/5) = 105 * (6/5)
So when we have to increase a number by 20%, we just multiply it by 6/5. When we have to decrease a number by 20%, we just multiply it by 4/5 (because 1 – 1/5 = 4/5). You might feel that these are little things, not likely to help you save much time. But once we build up on these little things, they work wonders.
Let's try to decrease 120 by 33.33%.
33.33% is 1/3. *When you try to decrease a number by 1/3, you will need to multiply it by (1 – 1/3) = 2/3. So to decrease 120 by 33.33%, we just need to multiply it by 2/3.* We get 120 * (2/3) = 80.
Try to do the following orally:

1. What is 40% of 320?
2. What do you get when you increase 352 by 37.5%?
3. What do you get when you decrease 819 by 11.11%?

The most important application of this method is successive percentage changes. Let's take an example:

Example: In 2008, the membership of People's Society was 90,000. In 2009, it increased by 22.22%. In 2010, it decreased by 9.09%. What was the membership at the end of 2010?

Solution: 11.11% = (1/9), therefore 22.22% must be 2/9 (multiplying both sides of the equation by 2). To increase a number by 22.22%, we must multiply it by 11/9 (because 1 + 2/9 = 11/9). Also, 9.09% = 1/11. To decrease a number by 9.09%, we must multiply it by 10/11 (because 1 – 1/11 = 10/11)

Membership at the end of 2009 = 90,000*(11/9)

Membership at the end of 2010 = 90,000*(11/9)*(10/11) = 100,000

The membership at the end of 2009 is the membership at the beginning of 2010 (i.e. 90,000*(11/9)) which decreases by 9.09%.

Once you are comfortable with this method, you will directly jump to the step in Bold above