1. Recall the distributive law. If you have $3(4+7)$, you can calculate this number in two ways. One way is to do this: $3(4+7) = 3(11) = 33$. The other way is to use the distributive law, where you do this: $3(4+7) = 3 \times 4 + 3 \times 7 = 12 + 21 = 33$. Both ways get you the same answer, so you may choose the easier method. If we have something like $5 \times 7 + 5 \times 11$, we can reverse the distributive law (this is called factoring), and write the number like this: $5(7+11)$. We will use this principle in several problems.

   $(27-27\times0.75)\times4$. We can rewrite the part in parenthesis like this: $(27\times1-27\times0.75)$. Now we can reverse the distributive law and factor out 27, so we are left with $27(1-0.75) = 27\times0.25$. Now complete the problem: $(27 \times 0.25) \times 4 = 27 \times \frac{1}{4} \times 4 = \boxed{27}$

2. $\boxed{2009}$

3. $\boxed{20}$

4. $53 \times 5 + 47 \times 7 + 5.3 \times 40 + 4.7 \times 20$.

   First let's rewrite this part: $5.3 \times 40 + 4.7 \times 20$. Since I know $4 \times 10 = 40$ and $2 \times 10 = 20$, I can break down the 40 and 20 and write $5.3 \times 40 + 4.7 \times 20 = 5.3 \times 4 \times 10 + 4.7 \times 10 \times 2 = (5.3 \times 10) \times 4 + (4.7 \times 10) \times 2 = 53 \times 4 + 47 \times 2$.

   Now let's rearrange the problem: $53\times5+47\times7+53\times4+47\times2 = \mathbf{53}\times5+\mathbf{53}\times4+\mathbf{47}\times7+\mathbf{47}\times2$. I have numbers in common, so I can use the reverse distributive law and factor out a 53 and a 47: $53 \times 5 + 53 \times 4 + 47 \times 7 + 47 \times 2 = 53(5+4) + 47(7+2) = 53 \times 9 + 47 \times 9$.

   Now there is a 9 in common, so factor again: $53 \times 9 + 47 \times 9 = 9(53+47) = 9 \times 100 = \boxed{900}$

5. $333.3 \times 1350 - 11110 \times 40.5 =$

   $= (333.3 \times 10) \times 135 - 1111 \times (10 \times 40.5)$

   $= 3333 \times 135 - 1111 \times 405$

   $= 3 \times 1111 \times 135 - 1111 \times 405$

   $= 1111(3 \times 135 - 405)$

   $= 1111(405 - 405)$

   $= 1111(0) = \boxed{0}$

6. $\boxed{0}$

7. $32.1 \times 7.3 + 2.3 \times 64.2 + 96.3 \times 2.7 =$

   $= 32.1 \times 7.3 + 2.3 \times 2 \times 32.1 + 3 \times 32.1 \times 2.7$

   $= 32.1(7.3 + 2.3 \times 2 + 3 \times 2.7)$

   $= 32.1(7.3 + 4.6 + 8.1)$

   $= 32.1(20) = \boxed{642}$

8. $127 \times 2.9 - 2.9 \times 55 + 28 \times 2.9 =$

   $= 2.9(127 - 55 + 28)$

   $= 2.9(127 + 28 - 55)$

$= 2.9(155 - 55)$

$= 2.9(100) = \boxed{290}$

9. $9 + 99 + 999 + 9999 + 99999 + 999999 =$

$= 4 + 1 + 1 + 1 + 1 + 1 + 99 + 999 + 9999 + 99999 + 999999$

$= 4 + (1 + 99) + (1 + 999) + (1 + 9999) + (1 + 99999) + (1 + 999999)$

$= 4 + 100 + 1,000 + 10,000 + 100,000 + 1,000,000 = \boxed{1{,}111{,}104}$

10. $\boxed{86.658}$