1. Looking at it you realize that $A = B + C$. Thus, $B + C - A = 0$.
2. From the first equation you know $A = 2$. From the second you know $B = 5$. From the 3rd you know $C = 2$. Thus, $A + B + C = 9$.
3. $\frac{(5)(10)}{5+10} = \frac{10}{3}$. Multiply by 5 and you get 50/3.
4. A=55, B=7, C=4, D=207. Thus, $A + B + C + D = 273$.
5. They are 73, 79, 83, 89, and 97. Sum those to get 421.
6. 2@1=2. 3@2=9. $2\&9 = -77$. 3@1=3. 1@4=1. $3\&1 = 8$. $(-77 + 8)(-77 - 8) = 5865$.
7. $A = -b/a = -2/3$. $B = \frac{b^2 - 2ac}{a^2} = 10/9$. $C = -b/c = 2$. $D = c/a = -1/3$. So, A+B+C+D=19/9.
8. Slope of perpendicular line is 2/3. Must go through midpoint, which is (4,2.5). Thus, line is 4x-6y=1
9. Solving each system gives $(a, b) = (2, 3); (c, d) = (3, 1); (e, f) = (1, 4); (g, h) = (1, 1)$. So, $a + b + c + d + e + f + g + h = 16$.
10. Simplify and you get $\frac{1}{108x^{10}y^4z^2}$.
11. A perfect number is a number that is equal to the sum of its positive integral factors excluding itself; the first perfect number is 6 and the 2nd is 28. Thus, the sum is 34.
12. Factor to get $f(x) = (3x - 1)(x + 1)$. So the x-intercepts are $\{\frac{1}{3}, -1\}$.
13. $(0.1)(0.5)(x) = 20$. So $x = 400$.
14. Solving the first system gives (1,1). Solving the second gives (2,1). Thus, abcd=2.
15. Use divisibility tricks (take the sum of the 1st, 3rd, 5th, etc digits, and from them subtract the sum of the 2nd, 4th, 6th, etc. digits. If the resulting number is divisible by 11, then so is the original) to find that only 29392 and 11 are divisible by 11. Thus, there are 2.