Question 6

$\min(a, \min(b, c)) = \min(\min(a, b), c)$

If a is the smallest (or equal to the smallest), then clearly, $a \leq \min(b, c)$, so the left side is just a. On the right side, we have $\min(\min(a, b), c) = \min(a, c) = a$. So we have $a = a$.

If b is the smallest (or equal to the smallest), we can use the same reasoning to show that $\min(a, \min(b, c)) = \min(a, b) = b$ on the left, and $\min(\min(a, b), c) = \min(b, c) = b$ on the right, and we have $b = b$.

If c is the smallest (or equal to the smallest), then we have $\min(a, \min(b, c)) = \min(a, c) = c$ on the left and $\min(\min(a, b), c) = c$ on the right. Again, we have $c = c$.

Since one of the three has to be smallest, all cases have been taken care of.