9B: 3^l, $2 \cdot x^\alpha$, y^β, $2^k \cdot 3 \cdot z^\gamma$

x = 5, y = 7, z = 11: $2 \cdot 5^\alpha = 7^\beta - 1 = 6 \cdot (7^{\beta-1} + ... + 1)$ is divisible by 3, contradiction.

x = 5, y = 11, z = 7: $2 \cdot 5^\alpha = 11^\beta - 1 = 10 \cdot (11^{\beta-1} + ... + 1)$ yields $5^{\alpha-1} = 11^{\beta-1} + ... + 1 = (2 \cdot 5 + 1)^{\beta-1} + ... + 1 = 5 \cdot M + \beta$; assuming $\alpha \geq 2$, β must therefore be divisible by 5. It follows that $2 \cdot 5^\alpha = 11^\beta - 1 = 11^{5\beta'} - 1 = (11^5)^{\beta'} - 1 = (11^5 - 1) \cdot ((11^5)^{\beta'-1} + ... + 1)$ is divisible by $2 \cdot 5^2 \cdot 2{,}221$, contradiction. (We may assume $\alpha \geq 2$ because $\alpha = 1$ leads to $\gamma = 0$ and the non-acceptable solution {9, 10, 11, 12}.)

x = 7, y = 5, z = 11: $2 \cdot 7^\alpha = 5^\beta - 1 = 4 \cdot (5^{\beta-1} + ... + 1)$ is divisible by 2^2, contradiction.

x = 7, y = 11, z = 5: $2 \cdot 7^\alpha = 11^\beta - 1 = 10 \cdot (11^{\beta-1} + ... + 1)$ is divisible by 5, contradiction.

x = 11, y = 5, z = 7: $2 \cdot 11^\alpha = 5^\beta - 1 = 4 \cdot (5^{\beta-1} + ... + 1)$ is divisible by 2^2, contradiction.

x = 11, y = 7, z = 5: $2 \cdot 11^\alpha = 7^\beta - 1 = 6 \cdot (7^{\beta-1} + ... + 1)$ is divisible by 3, contradiction.