4B: $2\cdot x^{\alpha}$, y^{β}, $2^k\cdot 3^l$, z^{γ}

<u>x = 5, y = 7, z = 11:</u> $2^k\cdot 3^l = 11^{\gamma} - 1 = 10\cdot(11^{\gamma-1} + ... + 1)$ is divisible by 5, contradiction.

<u>x = 5, y = 11, z = 7:</u> β must be odd, otherwise $2\cdot 5^{\alpha} = 11^{\beta} - 1 = 11^{2\beta'} - 1 = 121^{\beta'} - 1 = 120\cdot(121^{\beta'-1} + ... + 1)$ would be divisible by 3. It follows that $2^k\cdot 3^l = 11^{\beta} + 1 = 12\cdot(11^{\beta-1} - 11^{\beta-2} + ... + 1)$ with $11^{\beta-1} - 11^{\beta-2} + ... +1$ odd, therefore k = 2. Now γ must be odd, otherwise $4\cdot 3^l = 7^{\gamma} - 1 = 7^{2\gamma'} - 1 = 49^{\gamma'} - 1 = 48\cdot(49^{\gamma'-1} + ... + 1)$ would be divisible by 2^4. But if γ is odd then $4\cdot 3^l = 7^{\gamma} - 1 = 6\cdot(7^{\gamma-1} + ... + 1)$ with $7^{\gamma-1} + ... + 1$ odd, contradiction.

<u>x = 7, y = 5, z = 11:</u> as in case z = 11 above or in case y = 5 below.

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

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

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