

$$P = 31 \quad q = 19$$

$$31 * 19 = n$$

$$589 = n$$

$$P(n) = 30 * 18$$

$$P(n) = 540$$

$$E = 7$$

$$7 * d \bmod 540 = 1$$

$$540x + 7y = 1$$

$$540 = 77(7) + 1$$

$$7 = 7(1)$$

My head hurts with the Euclidean algorithm. I'll have to study it