A modem transmitting at 1200baud is able to transfer data at a speed of 9600bps. How is this achieved?

Step 1: Answer  
(C) Each signal event represents 8 bits.

Step 2: Explanation

9600 bps at 2400 baud. Any user of a modem will be familiar with these terms.

bps and baud are frequently used interchangeably. The two, however, are absolutely not the same.

The number of signal intervals, or pulses, transmitted each second defines the carrier signal. A baud is the name for each pulse.

Bits per second is referred to as Bps. Bps is a measurement of the number of bits that may be sent in a single pulse (one baud). So,

bps is calculated as baud times the bit rate.

Early modems could only send out a single bit every baud, therefore a modem with a baud rate of 1200 would also be sending out 1200 bits per second.

We now require faster speeds. However, the baud rate cap for two-way communications is 1200 baud. Therefore, the technique is to squeeze as many bits as you can into a single baud.

A modem transmitting at 9600 bps is only doing so at a rate of 1200 baud. But it is "packing" 8 bits into each baud:

1200 baud times 8 bits per baud is 9600 bps.

Quadrature amplitude modulation is the name of the general method for "packing" bits into a baud.