

15. For purposes of deducing the properties of the antineutron, one may cancel a proton from each side of the reaction and write the equivalent reaction as

$$\pi^+ \rightarrow p + \bar{n} .$$

Particle properties can be found in Tables 45-3 and 45-4. The pion and proton each have charge  $+e$ , so the antineutron must be neutral. The pion has baryon number zero (it is a meson) and the proton has baryon number  $+1$ , so the baryon number of the antineutron must be  $-1$ . The pion and the proton each have strangeness zero, so the strangeness of the antineutron must also be zero. In summary,  $q = 0$ ,  $B = -1$ , and  $S = 0$  for the antineutron.