EXAMPLE For what values of *h* will the following system be consistent?

$$3x_1 - 9x_2 = 4 -2x_1 + 6x_2 = h$$

Solution Reduce the system to triangular form. Add 2/3 times row 1 to row 2:

$$3x_1 - 9x_2 = 4$$

 $0x_1 + 0x_2 = h + 8/3$ — only true if $h + 8/3 = 0$

The system is consistent precisely when h = -8/3.