A2 ZpH pg8

8 cont. 7 is a prime, so, being a prime, it must divide m^2, and so divides m as well. The reverse is also true, m divides 7 and 7^2
So, since we know 7 is a factor of p^2, it must also be the factor of p

So we write $p = 7 \cdot c$, where c is some constant
Sub $p = 7a$ in our equation and,

$$\frac{(7c)^2}{7} = q^2$$

$$\frac{49c^2}{7} = q^2$$

$$a^2 = \frac{q^2}{7}$$

So, 7 will also be the factor of q.
We originally assumed that p and q are the coprimes. Meaning 1 is the only number that can evenly divide both. But here 7 is common factor to p and q, which makes our original assumption false

So, 7 isn't a rational number. Thus, it must be irrational.