

- HW returned today
 - New portfolio assignments out soon
 - ↳ finish up first round
-

$$\underline{7m^2} = \underline{n^2}$$

$$7(p_1^{r_1} \dots p_k^{r_k})^2$$

$$(q_1^{s_1} \dots q_k^{s_k})^2 = q_1^{2s_1} \dots q_k^{2s_k}$$

$$= 7 p_1^{2r_1} \dots p_k^{2r_k}$$

Similar argument shows: $13m^2 = n^2$ is impossible
 $p m^2 = n^2$ is impossible
 for any prime p .

$6m^2 = n^2$ is impossible
 $2 \cdot 3m^2 = n^2$

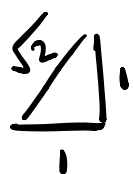
Most general: $k m^2 = n^2$ is impossible if k
 has any odd exponents in
 its prime factorization.

Another perspective: $7m^2 = n^2$ impossible $m, n \in \mathbb{N}$

$$7 = \frac{n^2}{m^2}$$

$$\sqrt{7} = \frac{n}{m}$$

i.e. Jerry's proof $\Rightarrow \sqrt{7}$ is irrational.



$2m^2 = n^2$ is impossible

$\rightarrow \sqrt{2} \neq \frac{n}{m}$ for any $n, m \in \mathbb{N}$.

$24m^3 = n^3$ is impossible

$\Leftrightarrow \sqrt[3]{24}$ is irrational

Monday HW: 2.22, 2.23, 2.26, 2.27

Sim. to 2.19, 2.20

applications of F.T.A.

\hookrightarrow Thm 2.12