2

50

0

32

?

PROVE IT

our first proof (by construction)

our first proof (by construction)

> **Theorem**
>
> For all integers n, if n is even, then n^2 is even.

PROVE IT

- Pick some arbitrary even integer n and try some examples:
  - 2^2 $= 4$ $= 2 \times 2$
  - 10^2 $= 100$ $= 2 \times 50$
  - 0^2 $= 0$ $= 2 \times 0$
  - $(-8)^2 = 64$ $= 2 \times 32$
  - n^2 $=$ $= 2 \times \text{?}$

what's the pattern? can we predict this?

our first proof (by construction)

> **Theorem**
>
> For all integers n, if n is even, then n^2 is even.

PROVE IT

$$\underbrace{}_{n}$$