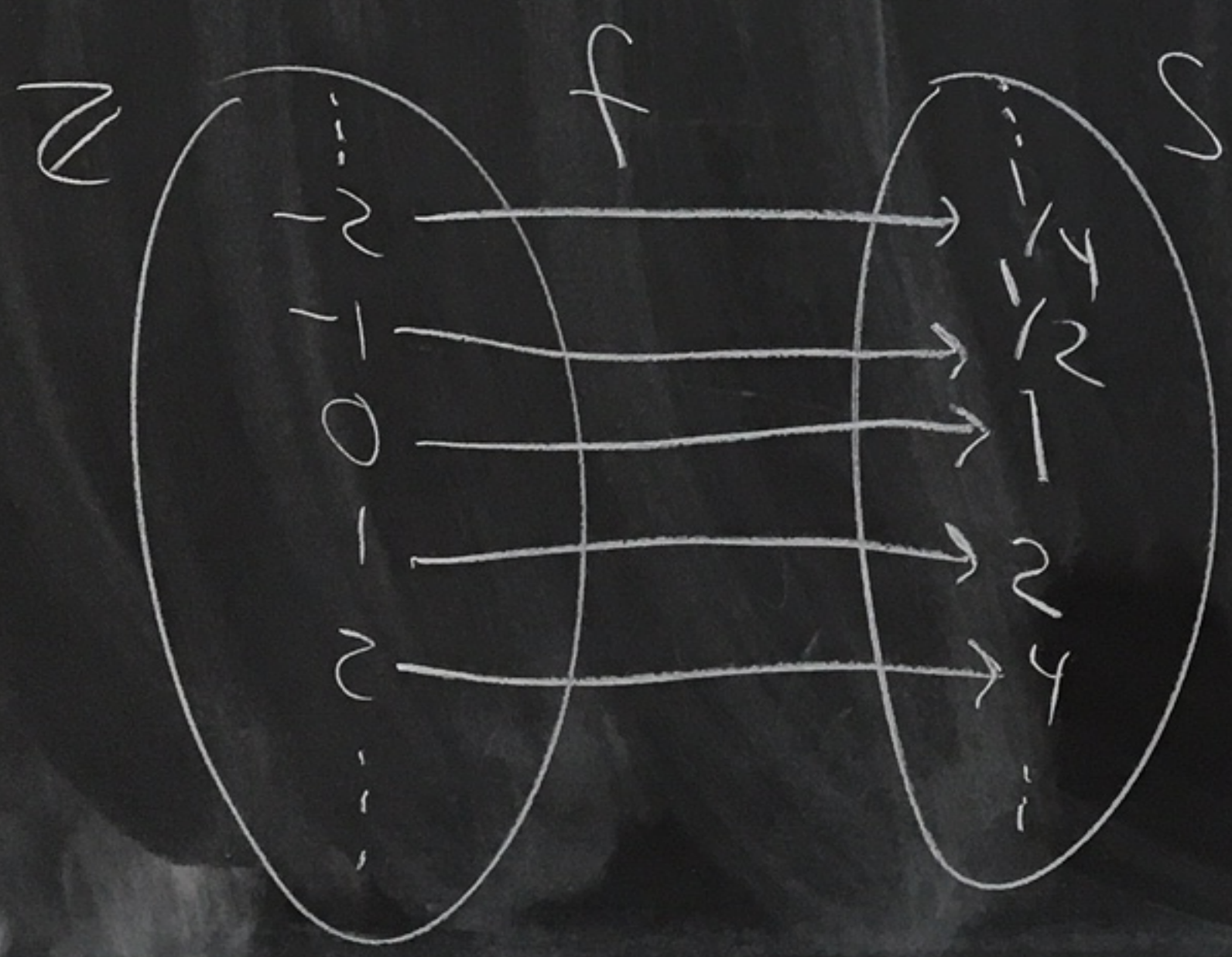


7, 9

14.1

⑦ $S = \{ \dots, \frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1, 2, 4, 8, \dots \}$
and $\mathbb{Z}$

Define
 $f: \mathbb{Z} \rightarrow S$
by $f(n) = 2^n$



1-1

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$\{4, 8, \dots\}$

1-1

Suppose $f(x) = f(y)$ where $x, y \in \mathbb{Z}$.

Then $2^x = 2^y$.

So, $\ln(2^x) = \ln(2^y)$.

Thus, $x \ln(2) = y \ln(2)$.

So, $x = y$.

Thus, f is 1-1.

$\Rightarrow$ Since f is 1-1 and onto,
 f is a bijection.
So, $|\mathbb{Z}| = |S|$.

Onto Let $b \in S$.

Then $b = 2^n$ where $n \in \mathbb{Z}$.

And $f(n) = 2^n = b$.

So, f is onto.