

## Infinite Geometric Series

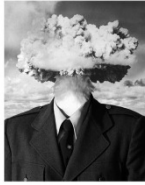
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots + \frac{1}{1024}$$

$$\frac{.75}{}$$

$$\frac{.875}{}$$

$$\frac{.9375}{}$$

$$\frac{.99902344}{}$$

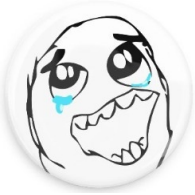


An infinite geometric series with common ratio  $r$  has a finite sum  $S$  if  $-1 < r < 1$

(if  $r$  is b/w  $-1$  and  $1$ ). This

Sum is

$$S = \frac{\text{first term}}{1-r}$$



5:18

**Ex 1** Find the sum of the infinite geometric series if it exists. If not, say so.

a)  $8 - 4 + 2 - 1 + \dots$

⑥  $8 + 12 + 18 + 27 + \dots$

**Ex 2** write each decimal as a common fraction.

$0.454545 \dots$