

## Section 11.3: Geometric Sequences and Series

Tuesday, March 15, 2016  
11:12 AM

examples:

①  $7, 14, 28, 56, \dots$

②  $100, 20, 4, \frac{4}{5}, \dots$

③  $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots, \frac{1}{1024}$

④  $24, -16, \frac{32}{3}, \frac{-64}{9}, \dots$

pattern?

mult by 2

mult by  $\frac{1}{5}$

mult by  $\frac{1}{2}$

mult by  $-\frac{2}{3}$

geometric sequence  $\equiv$  a sequence in which the next term is equal to the previous term multiplied by a constant

$\hookrightarrow$  common ratio  $r$

how to find  $r$ ? take any term and divide by previous term

④  $24, -16, \frac{32}{3}, \dots$

$$r = \frac{-16}{24} = -\frac{2}{3}$$

$$\text{or: } r = \frac{\frac{32}{3}}{-16} = \frac{32}{3} \cdot \left(-\frac{1}{16}\right) = -\frac{2}{3}$$