

## GQ: How do we model sequences?

CCSS: HSF.IF.C8.A Understanding rate of change

7.4 Monday 6 April

### Do Now: Reported NY State COVID-19 deaths

- ▶ On Thursday and Friday last week, NY State saw 562 and 630 fatalities respectively. Find the percent change.
- ▶ Identify the key features of the Desmos model and graph (for discussion).

Kognity textbook arithmetic sequences and series problems

Lesson:

Analyzing the pandemic as geometric sequence

Short writing exercise (Google docs)

## Arithmetic sequences and series

$$u_n = u_1 + (n - 1)d$$

$$S_n = \frac{n}{2}(2u_1 + (n - 1)d); S_n = \frac{n}{2}(u_1 + u_n)$$

1. In an arithmetic sequence, the first term is 3 and the second term is 9.
  - (a) Find the common difference.
  - (b) Find the eighth term.
  - (c) Find the sum of the first eight terms of the sequence.

## Arithmetic sequences and series

1. The first three terms of an arithmetic sequence are  $u_1 = 16$ ,  $u_2 = 13.5$ , and  $u_3 = 11$ .

(a) Find the common difference.

(b) Find the eleventh term.

(c) Given that the  $k$ th term of the sequence,  $u_k = 1$ . Find  $k$ .

## Arithmetic sequences and series

1. In an arithmetic sequence,  $u_2 = 14$  and  $u_5 = 23$ .

(a) Find the common difference and the first term.

(b) The sum of the first  $k$  terms of the sequence  $S_k = 207$ . Find  $k$ .