Mathematics Class Slides

Bronx Early College Academy

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24 March 2020

7.1 Online startup - exponents — Tuesday 24 March

7.2 Arithmetic sequences — Friday 26 March

7.4 Arithmetic sequences and series — Monday 6 April

GQ: How do we use exponents (and logs)?

CCSS: HSF.IF.C8.A Understanding rate of change 7.1 Tuesday 24 March

Do Now: Welcome to Beca Online!

- Complete the attendance question in Google Classroom
- Write in your notebook my new email, chuson@beca324.org
- Complete the G-Classroom "Do Now" questions

BECA Online expectations

Lesson:
Applications of exponential functions: log plots
Exit note: complete G-Classroom checkin survey
Homework: Kognity assignment, due by 10:00pm Thursday

GQ: How do we model sequences?

CCSS: HSF.IF.C8.A Understanding rate of change 7.2 Friday 26 March

Do Now: Study the COVID-19 Expert Forecast for the U.S.

- When will the number of hospitalizations peak, in their opinion?
- How much worse than the flu will this be in terms of annual deaths?
- Give a short written answer by private Zoom chat

Kognity textbook feedback

Lesson:
Analyzing the pandemic as frequencies, probabilities, & sequences
Breakouts: infections, ER seasonality, hospitalizations, deaths
Project: Pandemic analysis, due 10:00pm Tuesday

GQ: How do we model sequences?

CCSS: HSF.IF.C8.A Understanding rate of change 7.2 Friday 26 March

Project: Pandemic analysis

- Organize as an exploration: intro, body, conclusion, reflection, engagement
- "The aim of this exploration is to understand COVID-19 in NY State as a exponential or geometric process"
- Select one metric: infections, hospitalizations, or deaths
- Use a table(s) and/or chart(s) (pie, bar) as background
- Fit an exponential function / geometric sequence to the NYC COVID-Tracking data

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 kth 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.