Critical Mathematics Consciousness Interview Tasks
Interviewer Protocol

Develop rapport with students as well as explain that there are no right or wrong answers to the questions they will be asked.
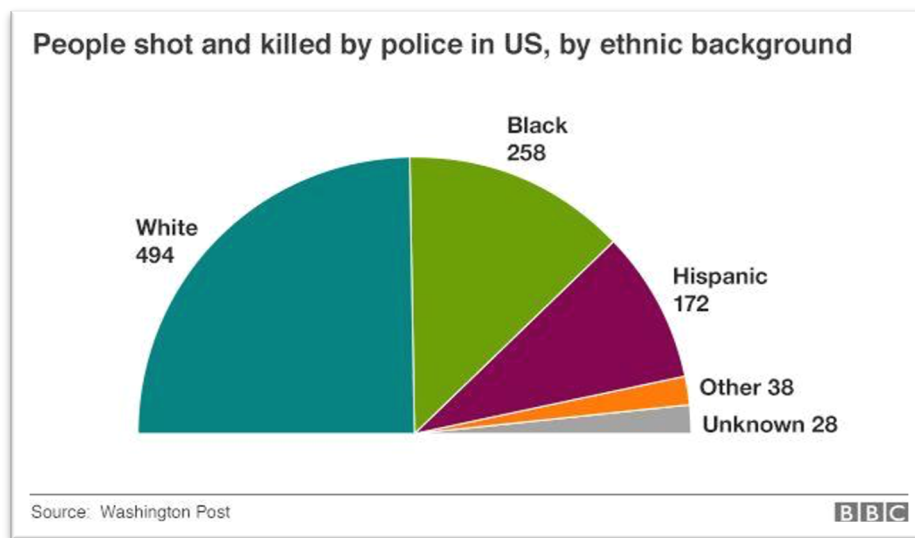
Begin with these basic questions as a way to learn about their consciousness as well as commend them on their ability to explain.

1. Do you enjoy mathematics class? Why or why not?

2. Where do you see mathematics used in the real world? Elaborate.

3. Someone said that *"Race and mathematics are related to each other, they go hand in hand."* Do you agree with this statement? Elaborate.

4. Some have said that mathematics contributes to inequalities in society. Do you agree with that statement? [Ask for specific examples]

5. Some have said that mathematics can be liberating, can free some groups of people. Do you agree with that statement? What does liberation mean to you? [Ask for specific examples]

It's Black and White

The following graph appeared in a YouTube news video with the following statement from the YouTuber:

It's a myth that police kill more blacks than whites.

People shot and killed by police in US, by ethnic background

Black 258

White 494

Hispanic 172

Other 38
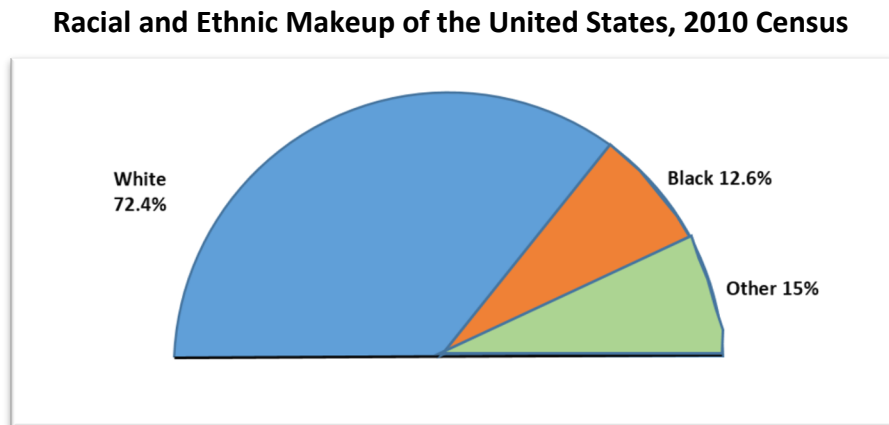
Unknown 28

Source: Washington Post

BBC

Interviewer: Does this graph support the YouTuber's statement that more Whites are killed by police than by Blacks?

Interviewer: What questions would you like to ask the person who posted this graph?

It's Black and White Part 2

Interviewer: I was interested in the post from the YouTuber too. So, I went to the United States Census website and downloaded the population data into the graph below.

Racial and Ethnic Makeup of the United States, 2010 Census

Interviewer: What does this graph tell you?

Interviewer: Does it change anything you thought about the YouTuber's graph and statement? Elaborate.

Interviewer: If you were going to write a comment or post a response on the YouTube video, what would you say?

Great Groceries

Great Groceries is one of the biggest successes in American grocery chains. Impressively, Great Groceries reported $14.74 million in quarterly profits last year. You report to the CEO for Great Groceries. One of his goals for 2020 is to increase profits.

Your Management Team comes up with the following three recommendations for increasing profits:

Option A: Tiered Membership Fee to shop at the store.

	Member's Yearly Income Level	**Membership Fee per Year**
Upper Tier	$150,000 and higher	free
Middle Tier	$70,000-$150,000	$50
Lower Tier	$30,000-$70,000	$75
Sub Tier	$Under $30,000	$100

Offer tiered membership fees, the idea being that richer customers buy more products. The Tiered-Membership Program would increase profits by 1.8%
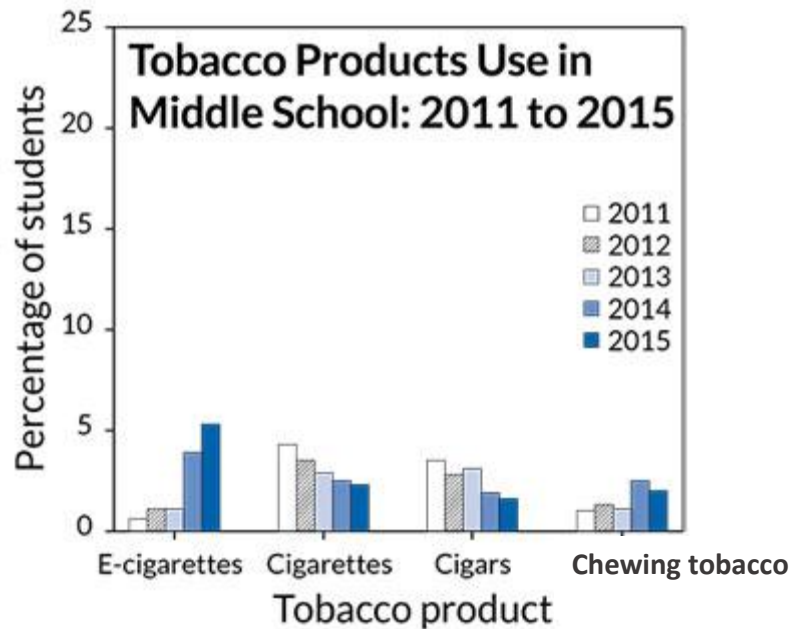
Option B: Raise the price on the five top selling items by $1.50 each, increasing profits by 0.5%

Option C: Put more digital, self-serve checkout stands in their stores to decrease the number of human workers, raising profits by 3.5%.

Interviewer: [*Make sure the student understands the table in Option A*]. Which option would you recommend to your CEO, if any? Explain. Why didn't you suggest Option A, B, or C? [*depends on which Option they chose*] If you didn't have to report to the CEO, which Option would you choose?

Twitter Trends

You work for Twitter's Data Management Department. You have written a computer algorithm that searches and records every tweet that involves tobacco use by teenagers 12-14 over the years 2011-2015. Your data set includes 3.5 million tweets and is summarized in the graph below.

Twitter routinely sells its de-identified data to clients who may be interested to learn about trends from Twitter users.

What companies, organizations or other groups of people might be interested in this data?

To whom would you sell this data and why?

FaceFinder

The Charlotte Police Department has hired your Artificial Intelligence Company to design a software program that will help them find criminals faster. If the police have a picture of the suspect, they want to be able to find their address quickly.

Your data science engineer writes an algorithm that searches Facebook, Twitter, Instagram and other social media programs for pictures of people. The algorithm, called FaceFinder, will compare the picture of the suspect against millions of online photos and find their address.

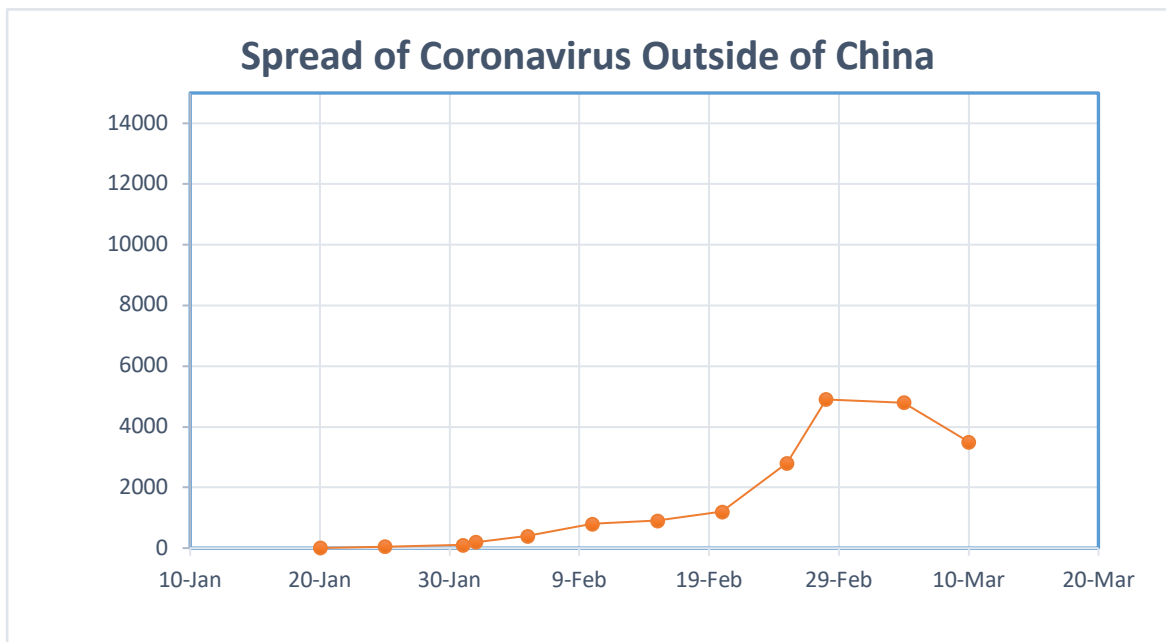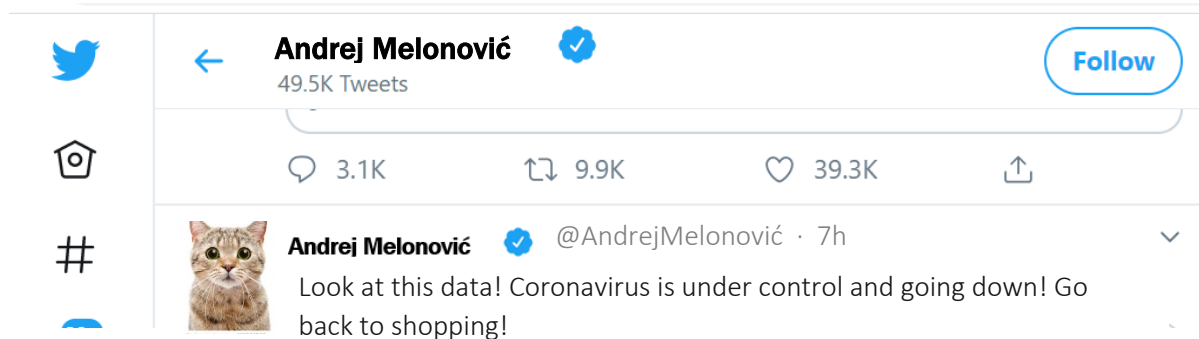The Charlotte Police Chief sends you the following email message:

FaceFinder is hands-down the best thing that has happened to victim identification in the last 10 years!!! Within a week and a half of using FaceFinder, our detectives have made eight identification of either victims or offenders through the use of this new tool! Thank you!

FaceFinder is so successful that your company is considering selling it to the public to raise their profits. Who might be interested in purchasing this data? Would you sell it to them? Why or why not?

Do you think that the police might mis-use it in any way? Explain.

Corona Crisis Part 1

The President of Commerce Bank is concerned about how the Coronavirus is impacting the economy. He tweets the following graph on Twitter to his followers:
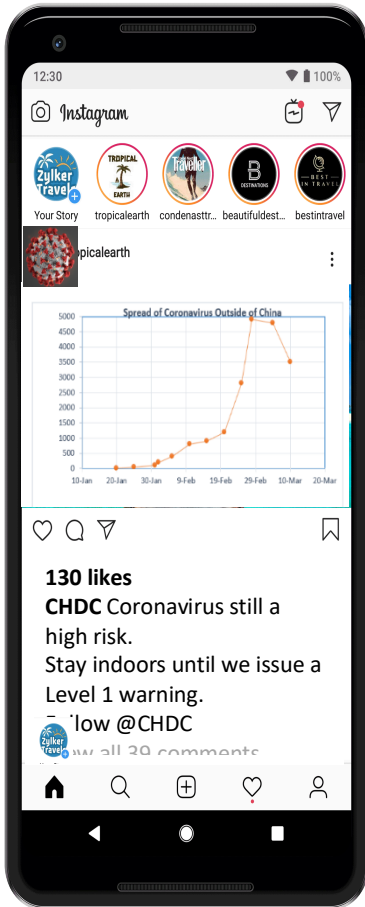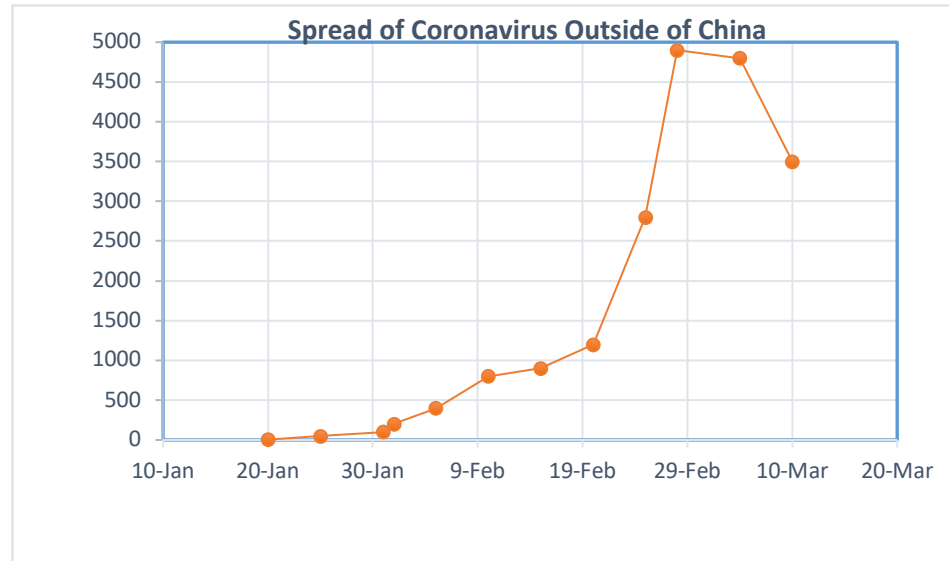
Interviewer: Would you take his advice? How did the graph help with your decision? Explain.

Corona Crisis Part 2

The Center for Health and Disease Control posted the following information via Instagram.

Phone Screen Zoomed In:

Source: *Statistica*
Retrieved March 7, 2020

130 likes
CHDC Our data shows that Coronavirus still a high risk.
Stay indoors until we issue a Level 1 warning.
Follow @CHDC
View all 39 comments

Add comment...

Interviewer: Whose advice do you take and why? Did you use the graph to make your decision? [*Default: If the student doesn't comment on the authors of each post, draw their attention to it by asking, why do you think the two posts showed the exact same data in different graphs? If they say that the authors changed the graph (i.e., scale), ask if the student thinks the author knew they were doing that.*]

Interview questions designed by the Ethical Reasoning in Mathematics Design Research Team, May 2020