

**Midterm INTD 290**

Maps of the New World

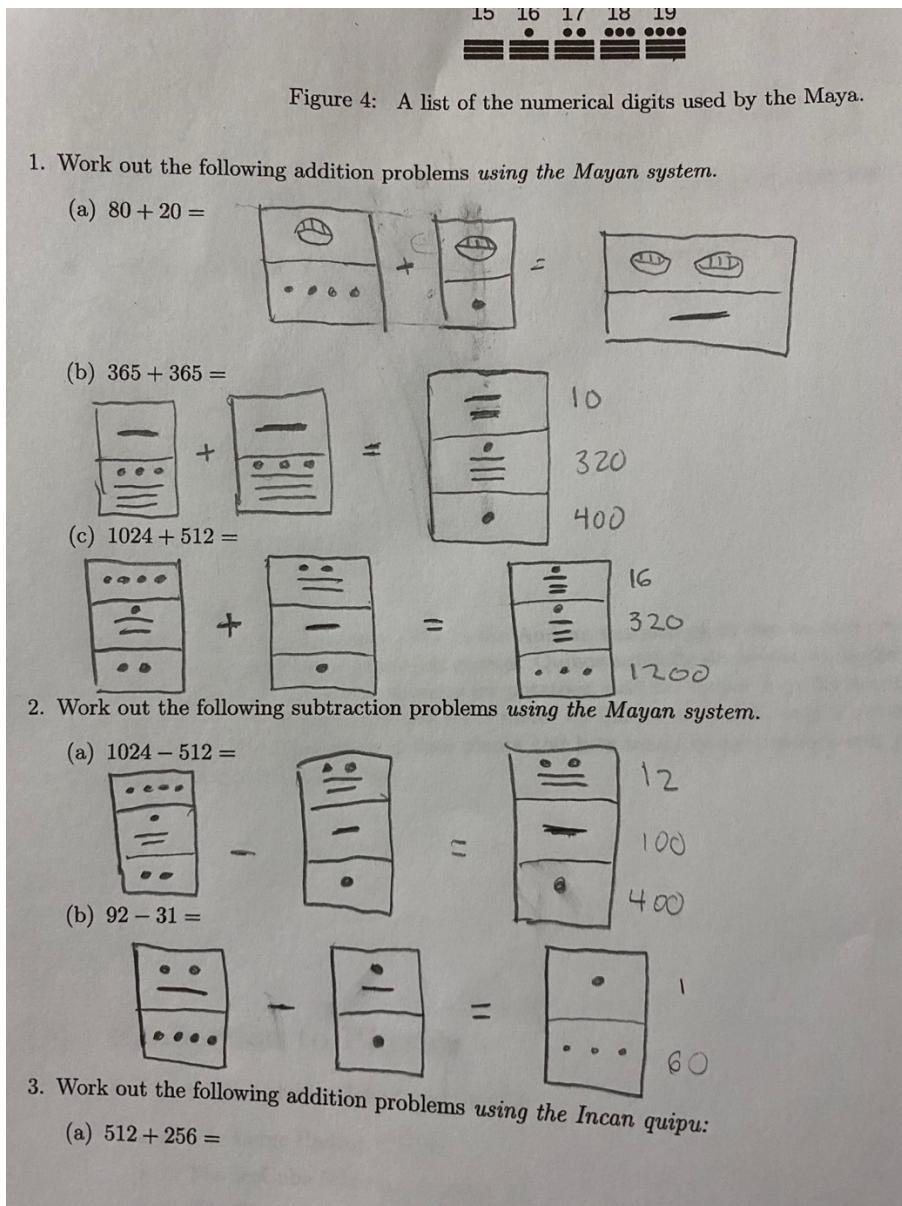
1. Nueva Espana (**Virreinato 2**)
2. Nueva Granada (**Virreinato 3**)
3. (**Virreinato 1**) Peru
4. Mexico City. Nueva Espana (**Virreinato 2**)
5. Charles de la Condamine and his Latin American colleagues visited, Peru (**Virreinato 1**), the city of Quito in Ecuador (**Virreinato 1**), and Nueva Espana (**Virreinato 2**)
6. Nueva Granada as this was responsible for starting collaboration with Creoles. (**Virreinato 3**)
7. Nueva Granada. Colegio del Rosario is located in Santa Fe de Bogota. (**Virreinato 3**)
8. The Pierre Auger Observatory is located in Argentina. (**Virreinato 4**)

Asynchronous Activity Review 1

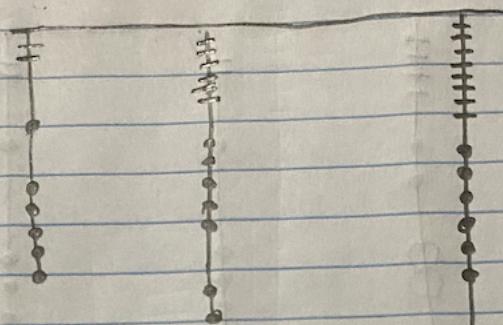
1. The physics detector that is shown on the left is the HAWC Gamma Ray observatory. HAWC was designed to detect gamma rays and cosmic rays from various astrophysical sources. They used a method known as the Water Cherenkov Technique on an artificial body of water which was used to sample charged particles that were created in air showers produced by the TEV gamma rays. With HAWC being at an altitude above Earth's surface this makes the observatory closer to the explosion of the original gamma ray that hits the air. Being next to a large mountain also gave the opportunity for neutrinos which are non-charged particles that go through the earth's crust which made it possible for these explosions to hit one side of the volcano and explode out of the other side.
2. The city located in figure 2 is Real de Catorce. The significance of these cities regarding the development of the scientific community and universities is that they were very abundant with silver. This mass amount of silver led to scientific advancement and the development of mining and scientific universities in this region. With more educated chemist and miners this led to more advancement in the craft of extracting silver and development of scientific communities in this specific region in Mexico.
3. In Figure 3, we are being shown the city of San Luis Potosi of central Mexico which was a hub for the mining and trade of silver and gold from the 1500s to the 1800s. With these cities having

an abundance of gold and silver, this led to the development of the scientific community and educational community in Potosí. This area is known for internationally trading a mass amount of silver as it was controlled by the viceroyalty of Nueva Granada as it was located in Mexico. The commodity of silver and sometimes gold was shipped to Europe and Africa on boats. This city also had many notable Universities that helped the advancement of mining, engineering, and technological studies.

### Asynchronous Activity Review 2

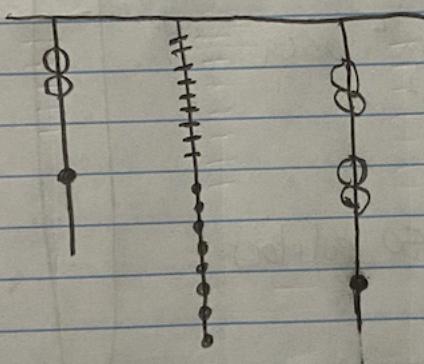


$$3a.) \quad 512 + 256 = 768$$

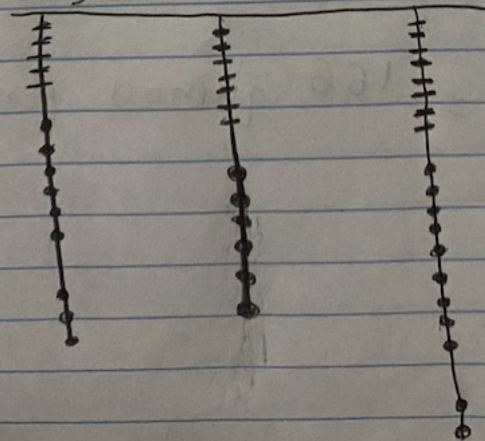


$$11 + 89 = 100$$

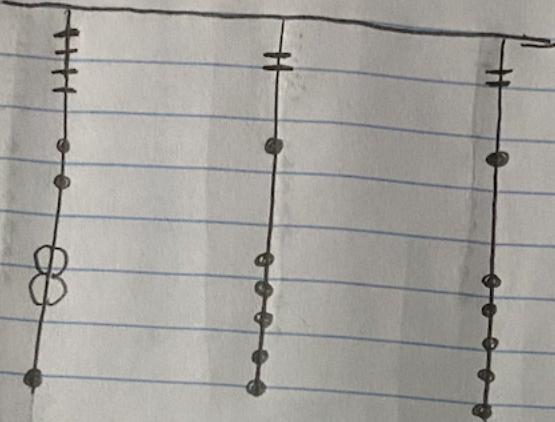
3b.)



$$4a.) \quad 365 - 67 = 298$$



$$4b.) 1024 - 512 = 512$$



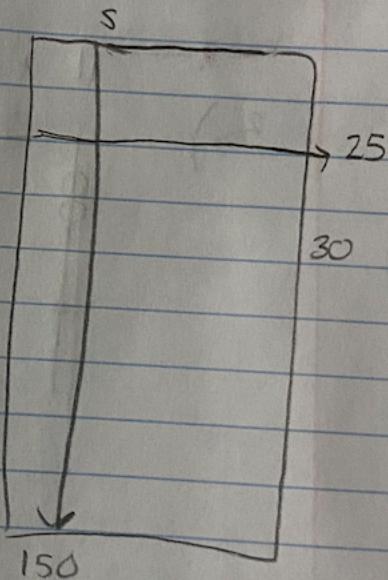
5.)

$$30 \times 5 = 150 \text{ m}^2 \text{ area}$$

$$\frac{1}{5} \times \frac{1}{5} = \frac{1}{25} \text{ m}^2$$

$$\frac{150}{\frac{1}{25}} = 3,750 \text{ potatoes}$$

$$\frac{3}{10} \times \frac{3}{10} = \frac{9}{100} \text{ m}^2$$



$$\frac{9}{100} \times \frac{150}{9} = 166 \text{ quinoa plants}$$

### Connection to Physics

1. C
2. C
3. A
4. A

### Vocabulary

1. A
2. C
3. D
4. B
5. B
6. D

### Free Response

1. Within the scientific communities of Nueva Granada and Peru in the 18<sup>th</sup> century. In the viceroyalty of Nueva Granada, Jose Celestino Mutis expedition botanica in 1783 led to scientific and academic developments in this region. Around the year 1730-1740 schools went from refuting Newtonian atheistic materialism to teaching governed strategies that looked to teach Cartesian philosophy regarding the principles of experimental physics. Some of the first schools to teach these new theories were the Universidad Javierna of Santa Fe and the Universidad Gregoriana of Quito. In 1755 the Universidad Javierna taught Newton and Copernican theories in 1755 as they began a philosophy course called *Physica specialis et curiosa*. The Jesuits also adapted to systematic Newtonian teachings towards the late 1730s as they were able to teach new physics without placing theology and science in opposition.

2. The aurora borealis which was visible from Mexico City in 1789 was significant because it helped scientists learn historical data that would be useful for future scientists. When observing the aurora at 16.8 degrees North, the Mexican scientists learned that auroras had a correlation to sun spots which was useful to future scientists. Sun spots are concentrations that come in

pairs which are from magnetic field which deflect the conduction of particles. The scientists Alzate and Ramirez predicted the aurora could be observed in other countries like Spain, and even as far as Russia and the observations of the Spanish proved these scientists right. Another notable scientist by the name of Jose Francisco Dimas Rangel was able to replicate the effects of an aurora which was critical to scientific development in this time period.

3. The four humors was a medieval theory that classified four classes of fluids within the body based on temperature and moisture. The four classifications were hot, cold, dry, and wet. According to the four humors chocolate is classified as warm and damp as scientists observed that it helps digestion, appetite, as well as bowel movement and urination. Some notable treatments for ailments in the body were xilo and tzipipatli. Xilo is residue extract from a balsam tree which was known for having medicinal properties. Tzipipatli was a herb found in Nueva Espana that was used to treat diarrhea. The Europeans would also use dry ground goat manure baked with wine to help treat broken ribs. Not only did the use Manure with wine but they also used ground pig weet with wine, and dog urine with wine, in order to treat people suffering from Dysentery.

4.

a) The famous philosophers of Voltaire and Rousseau played an important role in the censorship of knowledge from the Catholic Church between Europe and Latin America, as they helped spark the Enlightenment as they wanted people to gain more knowledge about science and other topics that were a threat to the Church and various viceroyalty's in Latin America.

The Church did not want people reading certain texts, as they did not want a revolution of people who thought different from the church's ideas feeling empowered as if they no longer needed the viceroyalties or the Church all together. The Church also censored Enlightenment books as many scientific books had to be smuggled into Latin America for people that were curious about the Enlightenment to indulge in.

b) In the history the Catholic censored the indigenous treatments as the Quipu people were destroyed for worshipping idols as their practices were censored. The Quipu were known to use herbs for not only religious purposes but for medicinal purposes which could have been seen as a threat to the church.

c) One of the most notable Catholic Scholars who contributed to Latin American Science was Alzate as he was a priest who published journals as the Church tried to hold him back from publishing his scientific works. He discussed topics such as the physics of the sun, magnetic fields, and charged particles.

d.) Knowledge that was translated was Nahautl information in Spanish by Jesuit priests to only speak in Spanish. This was influential as it led to the finding of the treatment of syphilis, and dysentery. These translations were critical for scientific developments in this time period.