**References used** (we can probably include links/give credit to these sites in very small font at the bottom of our webpages). At some points below, I have included notes like “(cite XXXX)” – this is just to help me remember where I have referenced sources, but we can either use numbers like [1] in the actual site or just leave these citations at the bottom and not in the text.

<http://www.tandfonline.com/doi/abs/10.1080/001075197182306>

<http://search.credoreference.com/content/entry/sharpewt/polo_marco_1254_1324/0?searchId=4f274845-f9b5-11e6-8424-12c1f5c39a71&result=0>

<https://books.google.co.uk/books?hl=en&lr=&id=ehAFUhWV4QMC&oi=fnd&pg=PA1&dq=marco+polo+travels&ots=R31eJp1cZc&sig=UKlh-NPZ5i_6WNuoY5jjLIH0_vo#v=onepage&q=marco%20polo&f=false>

<https://www.researchgate.net/profile/Suliman_Ahmed/publication/284847985_Marco_Polo/links/56596df808aefe619b222668.pdf>

**Introductory Text:**

Long ago, there lived a man named Marco Polo. Marco lived an adventurous life and spent many years travelling through the present day Middle East and Asia (cite researchgate). He recorded his experiences in an important book, which introduced many of his neighbors to the customs of these lands (cite credo). Marco grew up in Venice, a large Italian merchant city (cite credo). Marco often watched the traders around him and became fascinated with the stories he heard of faraway lands. When his father and uncle returned from a long journey to the Mongol empire (present day China) in 1269 A.D., they taught Marco the skills of the traders (cite researchgate). Marco, his father and his uncle then set out on a journey back to this empire and walked along the Silk Road to reach the court of the emperor Kublai Khan (cite credo).

We will follow Marco’s adventures along the Silk Road, and use our math skills along the way - click ‘Next’ to begin!

**Level 1:**

On the first leg of Marco Polo’s journey, Marco, his father and his uncle traveled by boat to Acre (modern day Israel), and then traveled by camel to Hormuz (modern day Iran). (cite researchgate).

Arithmetic Question 1: Marco Polo’s traveling party had to purchase 4 camels from a trader in Acre. They were not the only travelers that needed camels for a journey, however. The same day that they purchased their camels, a second party purchased 40 camels and a third party purchased 8. If the trader who owned the camels originally had 156 camels, how many camels did he finished the sales to these three parties?

Answer Options: A: 104 B: 112 C: 124 D: 108

Shape Question 2: The black shape on the map covers the area of the path that Marco Polo followed from the city of Trebizond (in modern day Turkey) to Baghdad (in modern day Iraq). Side A of the shape is 150 miles and Side B of the shape is 9 miles (assume that all the internal angles of the shape are 90 degrees). What is the total area of the shape?

Answer Options: A: 1,500 B: 17 C: 1,350 D: 600

Shape Question 3: If all internal angles of the shape are 90 degrees, and two equal sides of the shape are a different length than the other two equal sides, what is the name of the shape?

Answer Options: A: Rectangle B: Square C: Pentagon D: Rhombus

Hint1: Write out the problem as follows: 156 – 4 – 40 – 8 = ?

Hint 2: Area of a quadrangle = Width \* Length

Hint 3: The interior angles of both squares and rectangles are 90 degrees. One of these shapes has 4 sides of equal length, while the other has 2 sets of 2 sides of equal length.

**Level 2:**

As they were walking through the Gobi Desert (cite spices), Marco and his companions heard “the sounds of all kinds of musical instruments and also of drums and the clash of arms” (cite scholtz). The men did not know that this was only the sound of a sand dune avalanche, one of many strange natural desert events.

Arithmetic Question: Two of the men became startled by the sounds, and suddenly dropped the small bags of precious gems. The gems immediately scattered about the sand and became lost. Each man had been carrying 4 bags in total, and each of the 4 bags had contained, in order, either 15, 350, 55 or 30 gems. There were 3 travelers: Marco, his father and his uncle. How many gems, per person, did the men lose?

Answer Options: A: 125 B: 450 C: 300 D: 290

Shape Question: The red triangle on the map above covers the areas where Marco and his companions heard the noisy sand dunes. The base of the triangle (side B) is 90 miles and the height of the triangle (side A) is 70 miles. What is the area covered by the triangle?

Answer Options: A: 2,100 B: 12,600 C: 6,300 D: 3,150

Shape Question: Look again at the triangle above. Assume corner C is a 90 degree angle, and corners D and E are 45 degree angles. What type of triangle is it?

Answer Options: A: Isosceles B: Joined C: Equilateral D: Composed

Question 3 potential replacement! – instead, do “these cities are this far away (or would extend the side by this much). Drag the corner of the triangle to the city that it would need to reach if you want the area of the triangle to equal X”

Hint1: ((15 + 350 + 55 + 30) \* 2) / 3

Hint 2: A = ½ (b \* h)

Hint 3: (there is no hint 3 since this is a higher level of difficulty)

**Level 3:**

Marco and his relatives continued along the Silk Road and reach the court of Kublai Khan, the ruler of the Mongol empire, in 1275 A.D. While they were in China, they visited Beijing often to meet with the many silk and ginger traders there (cite credo, researchgate and spices).

Arithmetic Question: Marco asked one of the traders if he could give him some precious gems in exchange for silk. Marco and the trader did not speak the same language, but the trader drew 2^3 on a piece of parchment to show Marco how many gems he requested for the silk. Marco did not have enough gems, but together with his father and uncle they were able to pay for the silk. If each man paid the same number of gems, how many gems did each man pay?

Answer Options: A: 216 B: 27 C: 243 D: 729

Shape Question: The blue circle on the map centers on Beijing, where the trading market was located. If the diameter of the circle is the square root of 49 miles, what is the radius?

Answer Options: A: 3.5 B: 7 C: 4 D: 3

Shape Question: Say instead that the radius of the circle is 5 miles. What is the approximate area that the circle covers?

Answer Options: A: 314 B: 79 C: 1,964 D: 113

Hint1: 9 ^ 3 / 3

Hint 2: (there is no hint 2 since this is a higher level of difficulty)

Hint 3: (there is no hint 3 since this is a higher level of difficulty)