MGF 1106 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quiz 1

1. Select the statement about Egyptian mathematics that is false.
	1. They had a very efficient system for representing any number.
	2. They discovered that triangles with sides of lengths 3, 4, and 5 were right triangles.
	3. From preserved papyrus records we know how division and multiplication were carried out.
	4. They were aware of fractions and how to use them.
	5. They were aware of how to calculate the area of a circle.
2. There were significant differences between the Egyptian number system and the Babylonian number system. Perhaps the most significant difference was which of the following?
	1. Babylonians used a base 10 system in of the Egyptian base 60 system.
	2. Babylonians used place value.
	3. Egyptians mathematics were far more efficient.
	4. Babylonians were interested in astronomy unlike the Egyptians.
	5. The Babylonian mathematician Pythagoras proved his eponymous theorem.
3. Three coins are separately flipped. How many ways are there for exactly 2 of them to come up heads?

$$\left(\begin{array}{c}3\\2\end{array}\right)=3$$

1. You have a set of 5 square tiles, each of which has a different colored circle on it. How many ways can you line up 3 of them from left to right?

5x4x3=60

1. A pizza place has 4 choices of toppings. How many pizzas are there with precisely 2 toppings?

$$\left(\begin{array}{c}4\\2\end{array}\right)=\frac{4!}{2!2!}=6$$

1. How many possible 4 letter combinations of the letters {a, d, e, f} are there if you DO NOT allow for repetition?

4x3x2x1 = 24

1. If you flip 4 coins, how many possible outcomes are there with strictly fewer than 4 heads?

There are 24 = 16 total possible coinflips and exactly 1 way in which we can get 4 heads. Therefore, we get 16 – 1 = 15 outcomes with fewer than 4 heads.

1. If Sol Lewitt had only lighted his sphere from 4 sides, instead of 5, how many different ways of lighting it would there have been?

24 = 16

1. The symbol $N$ stands for what set?

The set of natural numbers

1. What is the cardinality of the set $\{1, 2, 3, 3, 3, 4\}$?

If we count up all the elements that do not repeated, we see this is 4.

1. Describe the Josephus problem. You could probably do this successfully with two or three sentences or two sentences and a diagram.

Refer to the relevant numberphile video. I accepted a wide range of answers.