

2023 Mission Math Utah Spring Competition (3-5)

You will have 20 minutes to complete as much of this test as you can. There are 10 free response questions total, and questions are arranged roughly from easiest to most difficult. Units are not needed. Write answers on the given line below each question. Calculators are not allowed. Do not begin the test until told to do so. Good Luck!

Full Name: _____

Grade: _____

Age: _____

1. Cynthia brings her two Pokémon, Garchomp and Lucario, a dozen and a half rare candies. How many rare candies does each one of them get if the three of them equally split the rare candies?

2. Alex has 168 Pokémon cards while Alexa has 56. What is the ratio of the number of cards Alex has to Alexa?

3. Brock is going to buy a lemonade at the Pokémart. He notices that if he pays in all Pokéquarters, which is $\frac{1}{4}$ of the value of a Pokédollar, he will use 9 fewer coins than if he paid in Pokédimes, which is $\frac{1}{10}$ of the value of a Pokédollar. To the nearest hundredth, how many Pokédollars is a lemonade at the Pokémart?

4. Charizard and his buddies decide to go swimming in a pool. He brings along 9 of his friends. There is a certain waterslide at the pool which takes 15 minutes to ride. If Charizard and each of his friends want to ride this slide, and only one Pokémon can go on it at one time, how many minutes will it take for all of them to go down the slide once?

5. How many ways are there to arrange the letters in the word "MISTY"?

6. Conkeldurr is really good at building houses. It takes him thirty days to build six houses. How many houses can 5 Conkeldurrs build in 7 days?

7. Team Plasma has been secretly plotting to create clones of Mewtwo in their underground lab. They start off with one cell on the first day. Every day afterwards, each cell will create one copy of itself. There will be two cells by the second day, and 4 cells by the third day. Team Plasma can start running diagnostics when there are at least 5000 Mewtwo cells present. On which day will they be able to have enough cells to start running diagnostics?

8. In the Pokémon world, a year lasts 36 days. What is the minimum number of random people that could be selected to guarantee that at least 11 of them have the same birthday.

9. Jacob is throwing different-sized Pokéballs at a Pokémon. The volume of the Pokéball is directly proportional to the chance of the Pokéball catching. If a Pokéball of radius 2 inches has x chance of catching, a Pokéball of radius 4 inches has $8x$ chance of catching, what is the chance of a Pokéball of radius 6 inches catching? Express your answer in terms of x .

10. Pikachu, Dragonite, Plusle, and Minun have gotten their hands on 5 candies. They decide to split up the candy between the four of them. If it is not required for every Pokémon to receive a candy, and Plusle and Minun request that they get the same number of candies, how many different ways do they have to split up the candies?
