

July 8
MATHCLUB Day
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MATH CLUB PROBLEM SET

1) Maricela distributed x gold pencils evenly among 17 gift bags for her Gold Level club members such that every bag received the greatest possible number of pencils, but some pencils were left over. What is the greatest possible number of pencils that could have been left over?



6) If $x \oplus y$ is defined as $xy + (2x - y) + y^2$, what is the value of $20 \oplus 6$?



7) Working together on their Gold Level project, 2 students can find 8 scavenger hunt items in 3 hours. How many hours would it take 3 students to find 12 scavenger hunt items so their club can achieve Gold Level?

2) If all the letters of the word CLUB are used, in how many different ways can the four letters be arranged in a four-letter sequence?



3) Rani's math club T-shirt design has the program logo—a regular hexagon—inscribed in a circle of radius 7 inches. What is the perimeter of the hexagonal program logo?

8) Ron and Martin are playing the Marble Challenge game. They have a bowl containing 39 marbles. Each player takes turns removing 1, 2, 3 or 4 marbles from the bowl. The person who removes the last marble loses. If Ron takes the first turn to start the game, how many marbles should he remove to guarantee he is the winner?

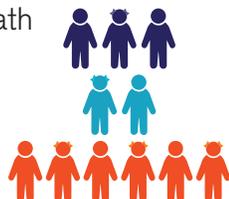


4) During Dice Duel, Amir rolls a fair 8-sided die with faces numbered 1 through 8 four times. What is the probability that Amir rolls exactly one 3, and that the 3 is rolled on the third roll? Express your answer as a common fraction.

9) Ms. Reyes divides her club into 2 teams for Talk Like a Pirate Day. The Buccaneers Team and the Green Parrots Team start the activity at the same time. The Buccaneers finish in 34 minutes and 27 seconds. The Green Parrots finish in 35 minutes and 25 seconds. How many seconds ahead of the Green Parrots do the Buccaneers finish?



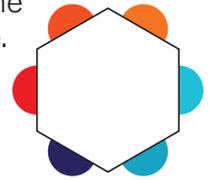
5) The ratio of 6th graders to 7th graders to 8th graders in Mr. Babson's math club is 3:2:6. If there are 33 total students in Mr. Babson's math club, how many are 8th graders?



10) Janet and Ronan are playing Reflection Battle with a sheet of graph paper. They draw a coordinate grid on the paper and plot the line $y = x$ as their line of symmetry. If Ronan plots the point $(-6, 14)$, what point must Janet plot to reflect Ronan's point over the line of symmetry?

11) Northwood Middle School's math club is trying to schedule their math club meetings for the year. One possibility is for the club to meet every day from 10:00 am to 11:00 am. Another possibility is meeting from 10:00 am to 11:15am each of four days. A third possibility is to meet from 10:00 am to 11:40 am each of three days. The club may meet on any of the five days of the school week. In how many different ways could the club meet?

16) A regular hexagonal table that is by itself seats 6 people, one person at each side. A row of these hexagonal tables is created by pushing together a certain number of them so that a side of one table meets a side of the next table. If 50 mathletes can sit at the row of tables that was created for their math club meeting, how many tables are in the row?



12) Ms. Grady is applying for Silver Level and is trying to figure out how often her club met over the course of November, December and January. During the first 2 months, the club met, on average, once every 5 days. If the club met 22 times in total, on average, how often did they meet in the third month? Round your answer to the nearest whole number of days.

17) For a certain move on his A-maze-ing Fractions board, Estephan accidentally switched the whole number part and the denominator of his mixed number. When he subtracted his new mixed number from the correct mixed number, his answer was $1 \frac{1}{6}$. If both mixed numbers had a one in the numerator, what was the original mixed number?

13) Marco and Trevor are playing Make 100. Six cards are chosen at random from a standard deck of 52 cards. What is the probability that all six cards are the same suit? Express your answer as a common fraction.



14) After doing the Make Your Money Grow activity with her math club, Tishe was inspired to invest her money. She deposited \$200 into an account with 8% interest compounded annually for 3 years. What is the number of dollars in the amount of interest Tishe earned? Express your answer as a decimal to the nearest cent.

18) Mr. Scott drives to his weekly math club meeting. Half the time during his 25-mile trip, his car averages 45 mi/h. Given that the trip takes 40 minutes, how many mi/h was his average speed for the rest of the trip?



19) DeShawn finds that his foot is 21 M&Ms long in the Measure Your Feet Day problem set. If the length of 5 paper clips is equal to the length of 7 pennies, and the length of 2 pennies is equal to the length of 3 M&Ms, how long is DeShawn's foot in paper clips?

15) Eisha rolls a product of 24 on her first turn in Fence Me In, which means she must make a rectangle with an area of 24 units². She wants her rectangle to have a length that is six times its width. What is the perimeter of Eisha's rectangle?

20) For Bake Cookies Day, Ms. Thibodeaux wants to actually bake cookies with her club after they complete the problem set. If the club uses a pan that is 12 inches by 15 inches, and the cookies will each have a radius of exactly 1.5 inches when cooked, what is the maximum number of cookies they can put on this pan to cook?

