



Enatai Math Challenge
February 2012
FORE!



Happy February! These problems are in order of increasing difficulty. Choose the one that fits your math ability and solve the problem. People at home can help you. Usually, you'll need to submit your answer using the R-E-C format from the attached form. Occasionally a poster or chart might be a better way to show an answer. Feel free to be creative. **Be certain to put the title of your problem, your name and your teacher's name on the form when you submit it.** All solutions are due to Miss Pearson by the last school day of the month. Bring your completed R-E-C form, charts and posters to your teacher. Students who successfully complete the challenge with the correct answer and a logical explanation of their mathematical thinking will receive a certificate and their name listed in the monthly Principal Update. Remember to **EXPLAIN** your thinking! Happy problem solving!!



A. The greens of a golf course are the flat areas with the shortest grass. Each green has 5 sprinkler heads to water it. How many sprinkler heads altogether are on the first 4 holes of the golf course? Record your mathematical thinking.



B. A typical golf course has 18 holes. Golf balls come in sets of 3, which are called *sleeves*. Name some other objects that come in sets of 2, 3, 5, 6, 9, and 12.



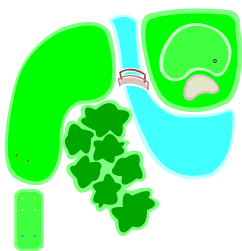
C. A golf course has 18 greens. Each green has a red, a white, or a blue flag to mark the location of the hole. There are 6 red flags, 6 white flags, and 6 blue flags spread out in a pattern throughout the golf course. Use colored tiles to represent the flags and create 3 different patterns that the golf course superintendent could use. Draw your 3 patterns, and explain your thinking to a partner.

D. Your family decides to play golf one day. Instead of playing all 18 holes, you decide to play $\frac{1}{2}$ of the course. If you start on the first hole, how many holes will you play? How many holes will you play if you play $\frac{1}{4}$ of the course? Show your problem-solving process, and then share with a partner what you did.

E. The pump station at Turkey Creek Golf Club pumps 2200 gallons of water every minute. How many gallons are pumped in 30 minutes? How many gallons are pumped in 1 hour? If the pump station runs for 6 hours and 37 minutes per night to water the entire golf course, how many gallons are pumped in a week?



F. An average round of 18 holes of golf takes 4 hours and 30 minutes to play. If you play half the course, how long will it take you to complete your round? If you play $\frac{1}{3}$ of the course, how long will it take you to complete your round?



G. The main parking lot of the golf course has 4 landscaped regions that each measure 300 ft. by 12 ft. The maintenance department must replace all the plants and trees in each of the 4 sections. What is the total area of each landscaped section? The superintendent must plant trees 20 ft. apart. How many trees must he buy for 1 landscaped section? How many trees will he need for all 4? He wants to plant a blue fescue plant every 3 ft. How many will he need for 1 landscaped section? For all 4 sections? Finally, he wants to put in red and white rose bushes every 6 ft. How many will he need for 1 area? For all 4 areas?



H. Using the previous information about the landscaped areas and a piece of graph paper, draw a scale model of one section of the parking lot. Place and label all the plants in the proper scale. Is there room for more plants in the landscaped area? Do some research online to find 2 more plants that you think will add to the beauty of the landscaped areas. List the 2 plants or flowers you chose, and let the superintendent know how many of each plant he will need for 1 landscaped area and how many he will need for all 4 landscaped areas.

I. Four sizes of pipe are used to irrigate a certain golf course. The pipe out of the pump station has a 12-in. diameter. The next size down has a 10-in. diameter. The final 2 sizes are 6 in. and 4 in., respectively. Draw circles to represent the pipes, and label the diameter and radius of each. Then find the circumference and area of each of the 4 circles.



J. A typical 18-hole golf course has a total score, known as *par*, of 72 shots divided into 3 types of holes. Golfers should need no more than 5 shots to get the ball into the hole on the green of a par-5 hole. Courses usually have 4 par-5 holes, 10 par-4 holes, and 4 par-3 holes. What percentage of the holes are par-5 and par-3? What percentage of the holes is par-4? If 72 total shots are allowed and a course has 10 par-4 holes, how many total shots are allowed on the par-4 holes? What percentage of the 72 holes are the par-4 holes?



K. Each of the 18 greens on a golf course averages 5500 sq. ft. in area. What is the total square footage of the 18 greens combined? How many square feet are in 1 acre? How many acres of this golf course are greens? If the golf course has 85 irrigated (watered) acres, what percentage of the whole golf course acreage is the greens acreage?

| Day | Temperature | Day | No. of rounds |
|-----------|-------------|-----------|---------------|
| Monday | 83 | Monday | 190 |
| Tuesday | 85 | Tuesday | 200 |
| Wednesday | 92 | Wednesday | 180 |
| Thursday | 100 | Thursday | 120 |
| Friday | 89 | Friday | 220 |
| Saturday | 95 | Saturday | 210 |

L. Using the tables to the left and a piece of graph paper, make line graphs. Include the following graph essentials: a title, equal intervals for each axis, numerical values for each axis, and words describing each axis. When your graphs are complete, explain what happens to the number of rounds being played as the temperature goes up. Why does Saturday have a high number of rounds even though the temperature is high? Make at least 3 other generalizations about your graphs, and share them with a partner.