

MATHCOUNTS[®] Problem of the Week Archive

Old Faithful – July 22, 2024

Problems

Old Faithful, a famous geyser in Yellowstone National Park, erupts approximately once every 92 minutes. (It used to erupt more frequently, but earthquakes have changed the geyser's plumbing, so it's not letting off a little steam as often as it used to.) Assuming that it spurts 8000 gallons of water each time, how many gallons will Old Faithful spurt in one year?

Predicting when Old Faithful will spurt *next* can be done by timing the previous eruption. If an eruption lasts t minutes, the next eruption will occur in approximately $12.5t + 33$ minutes. If a 4-minute eruption begins at 11:23 a.m., at what time would you expect the next eruption to occur?

Old Faithful is just one of hundreds of geysers in Yellowstone National Park. Yellowstone is a large park consisting of 3472 square miles of land. Of this land, 91% is in Wyoming, 7.6% is in Montana and 1.4% is in Idaho. How many square feet of Yellowstone is located in Idaho?