

MATHCOUNTS® Problem of the Week Archive

The Ever-Changing Olympics – August 3, 2020

Problems & Solutions

While the 2020 Olympics have been postponed to 2021, here are some problems about the Olympics in honor of the events that were supposed to be happening this summer.

In 1896, the first modern Olympics brought in 241 participants. At the 2004 Olympics—when the Olympics returned to Athens—there were 10,625 participants. What is the percent of increase in participation from 1896 to 2004? Express your answer to the nearest whole number.

First, we take $10,625 - 241 = 10,384$. Then, in order to find the percent increase in participation, we take $(10,384/241) \times 100 = 4309\%$.

Over the years, events have come and gone from the Olympic roster. For a few of the early years, tug-of-war was actually an event. In 1900, one of the American teams was made up of eight guys who also participated in many track and field events. If the average weight of the team was 250.5 pounds and the heaviest guy weighed 264 pounds, what was the average weight of the other 7 guys? Express your answer as a decimal to the nearest tenth.

First, let's figure out the sum of their weights using the formula for finding the average.

$$(a + b + c + d + e + f + g + h)/8 = 250.5$$

$$a + b + c + d + e + f + g + h = 2004$$

Thus, if the heaviest guy weighed 264 pounds, we can substitute that in for one of the variables and solve for the sum of the remaining unknown weights.

$$a + b + c + d + e + f + g + 264 = 2004$$

$$a + b + c + d + e + f + g = 1740$$

Thus, the average weight of the remaining guys is $1740/7 = 248.6$ pounds, to the nearest tenth.

Another event that was eliminated from the Olympic Games is the Standing High Jump. In this event, participants jump as high as they can from a standing position—they didn't get a running start like participants do for the modern high jump. In 1900, Ray Ewry set a world record of 1.65 meters and captured the gold. If there are 3.281 feet in one meter, how high was Ray Ewry's record-breaking jump in feet? Express your answer as a decimal to the nearest hundredth.

**Note: This feat was even more impressive because Ray was confined to a wheelchair paralyzed with polio throughout his childhood. He also earned a record 10 Olympic gold medals (the two medals earned in 1906 were at the intercalated Olympic Games, thus he is left out of many record books.)

Here, we simply need to convert the units from meters to feet. So, 1.65 meters $(3.281 \text{ feet}/1 \text{ meter}) = 5.41$ feet, to the nearest hundredth.

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