MATHCOUNTS® Problem of the Week Archive

Happy Flag Day! – June 13, 2022

Problems & Solutions

A stand at a local parade is selling flags for observers to wave. The small flags each cost 2/3 the price of each large flag, and each flag costs a whole number of dollars. If Frida bought 5 flags and spent $24.00, how much do each of the small flags cost in dollars?

*Because the numbers are small, guess and check may be used to solve this one. If the large flags each cost $6, the small flags would each cost $**4**. To make sure this is feasible: $4 + $4 + $4 + $6 + $6 = $24.*

The American flag has 13 horizontal stripes. If the flag outside of Victor's house is 4 feet tall and 6 feet wide, how many inches tall is each of the 13 stripes? Express your answer as a mixed number.

*First, we need to convert the height (4 feet) to inches. With 12 inches in a foot, this gives 4 × 12 = 48 inches. Dividing by 13, we find that each of the 13 stripes is 48/13 = **3 9/13** inches.*

On a bright, sunny day, Janine is standing 6 feet 3 inches away from the base of a 20-foot-tall flagpole. She notices that her shadow just touches the base of the flagpole. If Janine is exactly 5 feet tall, how long is the shadow of the flagpole at this same time?

*First, let's convert 6 feet 3 inches to feet, so that all measurements are in the same units. Three inches is the same as 3/12 = 1/4 = 0.25 feet, so 6 feet 3 inches is the same as 6.25 feet. Now, we can set up a proportion to represent the scenario: 6.25 feet/5 feet = x/20 feet, where x represents the height of the flagpole's shadow in feet. Cross-multiplying, we find that 5x = 6.25 × 20 = 125 → x = **25** feet.*

MATHCOUNTS® Problem of the Week Archive

Happy Flag Day! – June 13, 2022

Problems

A stand at a local parade is selling flags for observers to wave. The small flags each cost 2/3 the price of each large flag, and each flag costs a whole number of dollars. If Frida bought 5 flags and spent $24.00, how much do each of the small flags cost in dollars?

The American flag has 13 horizontal stripes. If the flag outside of Victor's house is 4 feet tall and 6 feet wide, how many inches tall is each of the 13 stripes? Express your answer as a mixed number.

On a bright, sunny day, Janine is standing 6 feet 3 inches away from the base of a 20-foot-tall flagpole. She notices that her shadow just touches the base of the flagpole. If Janine is exactly 5 feet tall, how long is the shadow of the flagpole at this same time?