

MATHCOUNTS[®] Problem of the Week Archive

Happy Flag Day! – June 12, 2017

Problems & Solutions

A stand at a local parade is selling flags for observers to wave. The small flags each cost $\frac{2}{3}$ 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 dollars, 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 to inches: $4 \text{ inches} \times 12 \text{ inches/foot} = 48 \text{ inches}$. Now we can divide the height by the number of stripes: $48 \text{ inches} \div 13 \text{ stripes} = \mathbf{3 \frac{9}{13}}$ inches per stripe.

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

To solve this one we can set up a proportion: $6.25/5 = x/20 \rightarrow 5x = 125 \rightarrow x = \mathbf{25}$ feet.

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