

MATHCOUNTS® Problem of the Week Archive

Springtime Babies – April 2, 2018

Problems & Solutions

A baby rabbit moves 5 inches forward with each hop and his mother moves 14 inches forward with each hop. After the mother and baby each hop 10 hops in the same direction, the mother stops and waits for her baby to catch up. How many hops does the baby have to take to catch up?

After 10 hops the mother has hopped $10(14) = 140$ inches and the baby has hopped $10(5) = 50$ inches. That means the baby has to hop another $140 - 50 = 90$ inches to catch up to his mother. Since the baby only hops 5 inches per hop, he has $90/5 = 18$ hops to go before catching up with his mother.

A mother duck has 5 ducklings. The average weight of the 5 ducklings is 6 ounces. If the average weight of three of the ducklings is 5.25 ounces, what is the average weight, in ounces, of the other 2 ducklings? Express your answer as a decimal to the nearest thousandth.

The sum of the weights of the 5 ducklings is $6(5) = 30$ ounces. The sum of the weights of three of the ducklings is $5.25(3) = 15.75$ ounces. Thus, the sum of the weights of the other two ducklings is $30 - 15.75 = 14.25$ ounces. That means the average weight of those two ducklings is $14.25/2 = 7.125$ ounces

Four piglets are placed in order by weight from lightest to heaviest. Each piglet, after the first is 2% heavier than the one before it. What percent heavier is the heaviest piglet than the lightest piglet? Express your answer to the nearest tenth.

Let's suppose that the first piglet weighed 10 grams. That would mean that the next piglet weighs $(1.02)(10) = 10.2$ grams. The third piglet, then, weighs $10.2(1.02) = 10.404$ grams, and the heaviest pig weighs $(1.02)(10.404) = 10.61208$ grams. Thus, the heaviest piglet is $[(10.61208 - 10)/10](100) = 6.12\%$ heavier than the lightest piglet.

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