MATHCOUNTS® Problem of the Week Archive

Sailing the Ocean Blue – October 9, 2023

Problems & Solutions

In 62 days at sea, Ferdinand's boat traveled 5580 miles. What was the average speed of Ferdinand's boat, in miles per hour? Express your answer as a decimal to the nearest hundredth.

> *We are told that Ferdinand traveled 5580 miles in 62 days. Since there are 24 hours in a day, Ferdinand traveled 5580 miles in 62(24) = 1488 hours. That means Ferdinand's average speed was 5580/1488 =* ***3.75*** *mi/h.*

In 62 days at sea, Christopher's boat traveled a distance that was 1/3 farther than the distance Ferdinand's boat traveled during the same amount of time. If 1 nautical mile is about 1.15 miles, approximately how many nautical miles did Christopher's boat travel in 62 days at sea? Express your answer as a decimal to the nearest hundredth.

> *If Christopher's boat traveled 1/3 farther than Ferdinand's boat, Christopher traveled a distance of (4/3)5580 = 7440 miles. Since 1 nautical mile is about 1.15 miles, Christopher traveled approximately 7440 ÷ 1.15 = 6469.565217 ≈* ***6469.57*** *nautical miles.*

A knot is a unit of speed equal to one nautical mile per hour. What was Christopher's average speed, in knots, during his 62 days at sea? Express your answer as a decimal to the nearest hundredth.

> *From the previous problem, we know that Christopher traveled approximately 6469.57 nautical miles in 62 days, and from the first problem, recall that this is equivalent to 1488 hours. That means Christopher's average speed was approximately 6469.57/1488 = 4.347829301 nautical miles per hour ≈* ***4.35*** *knots.*
>
> *You could also determine that since Christopher traveled 7440 miles in 1488 hours, his average speed was 7440/1488 = 5 mi/h. Because there are about 1.15 miles in a nautical mile, that would make his average speed approximately 5 ÷ 1.15 = 4.347826087 ≈* ***4.35*** *knots.*

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