



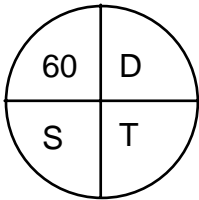
Aquatic Consulting Services

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Boating Tip #13: 60 D Street

Determining Speed • Determining Time • Determining Distance

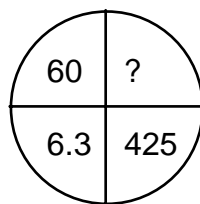
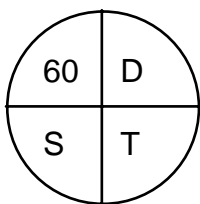
A 60 D Street calculation is used to find speed, distance or time when two of the three factors are known. Place known values in the appropriate quadrants. Multiply across quadrants. Divide the product of the numbers in the upper quadrants by the product of the number in the lower quadrants, or vice versa.



$$\begin{aligned}\text{Speed} &= (60 \times \text{Distance}) \div \text{Time} \\ \text{Distance} &= (\text{Speed} \times \text{Time}) \div 60 \\ \text{Time} &= (60 \times \text{Distance}) \div \text{Speed}\end{aligned}$$

Examples: Finding Distance

Cruising at 6.3 knots, it took 7:05 to cross the Outer Santa Barbara Passage from Cat Harbor (Santa Catalina Island) to Pyramid Cove (San Clemente Island). What was the distance?



$$\frac{6.3 \times 425}{60} = 44.6 \text{ nautical miles}$$

Time: $7:05 = (7 \times 60) + 05 = 425$ minutes

Speed: 6.3 knots

Distance: ?

You got underway at 0635 at a speed of 7.2 knots, and arrived at your destination at 1715. How far did you travel?

$$\begin{array}{r|l}
 16 & \\
 \hline
 \cancel{17} & 15 + 60 = 75 \\
 - 06 & 35 \\
 \hline
 10 & 40 \quad 10:40 = (10 \times 60) + 40 = 640 \text{ minutes}
 \end{array}$$

<table border="1" style="border-collapse: collapse; width: 60px; height: 60px; margin: auto;"> <tr><td style="text-align: center;">60</td><td style="text-align: center;">D</td></tr> <tr><td style="text-align: center;">S</td><td style="text-align: center;">T</td></tr> </table>	60	D	S	T	<table border="1" style="border-collapse: collapse; width: 60px; height: 60px; margin: auto;"> <tr><td style="text-align: center;">60</td><td style="text-align: center;">?</td></tr> <tr><td style="text-align: center;">7.2</td><td style="text-align: center;">640</td></tr> </table>	60	?	7.2	640	$\frac{7.2 \times 640}{60} = 76.8 \text{ nautical miles}$
60	D									
S	T									
60	?									
7.2	640									

Time: 640 minutes

Speed: 7.2 knots

Distance: ?

Examples: Finding Speed

It took 55 minutes to travel 6 nautical miles from Mission Bay to the LaJolla kelp beds. What was your speed?

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60	D									
S	T									
60	6									
?	55									

Time: 55 minutes

Speed: ?

Distance: 6 nautical miles

You depart from Avalon at 0800 and must travel 72 nautical miles back to your marina at Shelter Island in San Diego Bay. You want to arrive before sunset at 2015. What speed must be made?

$$\begin{array}{r|l}
 20 & 15 \\
 -08 & 00 \\
 \hline
 12 & 15
 \end{array}
 \quad 12:15 = (12 \times 60) + 15 = 735 \text{ minutes}$$

60	D
S	T

60	72
?	735

$$\frac{60 \times 72}{735} = 5.8 \text{ knots}$$

Time: 735 minutes

Speed: ?

Distance: 72 miles

Examples: Finding Time

Your vessel's top speed is 6.3 knots. You plan to sail a total distance of 275 nautical miles during your upcoming trip. How many hours will you be underway?

60	D
S	T

60	275
6.3	?

$$\frac{60 \times 275}{6.3} = 2619 \text{ minutes}$$

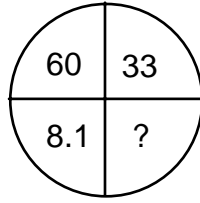
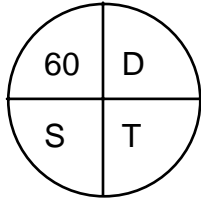
Time: ?

Speed: 6.3 knots

Distance: 275 nautical miles

$$\begin{array}{r}
 43:39 \\
 60 \overline{) 2619} \\
 \underline{-240} \\
 219 \\
 \underline{-180} \\
 39
 \end{array}$$

The distance from Dana Point to Avalon is 33 miles. Your vessel's average speed is 8.1 knots. How long will the trip take?



$$\frac{60 \times 33}{8.1} = 244 \text{ minutes}$$

Time: ?
 Speed: 8.1 knots
 Distance: 33 nautical miles

$$\begin{array}{r}
 4:04 \\
 60 \overline{) 244} \\
 \underline{-240} \\
 04
 \end{array}$$