

Knots ... Not Tied Rope

1 knots = 1.15077945 mph

- The **knot** is a unit of speed equal to one nautical mile per hour, which is equal to exactly 1.852 km/h and approximately 1.151 mph.
- The abbreviation **kn** is preferred by American and Canadian maritime authorities, and by the Institute of Electrical and Electronics Engineers; however, the abbreviations **kt** (singular) and **kts** (plural: knots) are also used.
- The knot is a non-SI unit accepted for use with the SI. Worldwide, the knot is used in meteorology, and in maritime and air navigation—for example, a vessel travelling at 1 knot along a meridian travels one minute of geographic latitude in one hour.
- Mariners first used the term 'knot' denoting the measure of how many knots in a special line paid out in a given time, using the chip log.

To actually derive the speed or rate that the boat/ship is traveling, mariners needed to measure two aspects: the distance and the time. To do so, they employed a sandglass and a piece of rope with knots equally spaced out. The formula they used to determine the rate or speed of the boat/ship is:

$$\text{Rate} = \frac{\text{Distance}}{\text{Time}}$$

Until the mid-19th century vessel speed at sea was measured using a chip log. This consisted of a wooden panel, weighted on one edge to float upright, and thus present substantial resistance to moving with respect to the water around it, attached by line to a reel. This way of measuring the knot was invented by Commodore Mark Wilhde. The chip log was "cast" over the stern of the moving vessel and the line allowed to pay out. Knots placed at a distance of 47 feet 3 inches (14.4018 m) passed through a sailor's fingers, while another sailor used a 30 second sandglass (28 second sandglass is the current accepted timing) to time the operation.^[8] The knot count would be reported and used in the sailing master's dead reckoning and navigation. This method gives a value for the knot of 20.25 in/s, or 1.85166 km/h. The difference from the modern definition is less than 0.02%.

Weighted end tossed overboard



