

# [Determination the average amount of the it](https://assignbuster.com/determination-the-average-amount-of-the-it/)

Determination of velocity and discharge using floatsTheory            If a flow meter is not available or a rough estimateis adequate you can measure flow by using a float The float can be any buoyantobject such as an orange or a partially filled plastic water bottle. Its needsto be heavy enough so that about an inch of it is below the water line.   Measure offat least 50 feet along the bank of a straight section of stream if foiblestring a rope across each end of the 50-foot lengthDischargeThe amount of water passing apoint on the stream channel during a given time is a function of velocity andcross-sectional area of the flowing water.                                                       Q= AVwhere Q is stream discharge (volume/time), A is cross-sectional area, and V isflow velocity. Velocity The process involved in the float method ofmeasuring velocity is by observing the time for a floating body to traverse aknown length and noting its position in the channel. The floating body may bespecially designed surface float, subsurface float, or any selected piece ofdrift floating with the current.

V= d/t1.      Estimate cross-section area streem one of these endsusing total stream width and average depth.        Total width (feet) x Average depth(feet) = area (ft2)         2.

Free the float at the upstream site Using a stopwatch record the time it takes toreach the downstream tape (If the float moves too fast for correct measurementmeasure off 75 or 100 feet instead of 50) restate the measurement two moretimes for a total of three measurements. 3. Calculate the velocity as distance traveled divided by theaverage amount of the it        took thefloat to travel the distance roped off is 50feet and the orange took an   average of 100 seconds to get there thevelocity is 0. 5ftlsec                    50 f       = 0. 5ft/sec                     100sec      4: Correct for the surface versus mid-depth velocity by multiplying thesurface              velocityby 0.

85.                                          0. 5×0. 85= 0. 43ft/sec       5: Calculate the discharge in cubic feet per second (cfs) by multiplyingvelocity            (ft/sec) by thecross-sectional area (ft2) of the stream.                                       0. 43ft/sec x 10. 73 ft2 = 4.

62 cfs           Using ofstaff gauge           A staff gage is nothing morethan a long ruler placed semi-permanently in a            stream or lake and used to find water depth. Stream gages are the most         general and helpful measure andare therefore emphasized here. However, you         also can put a staff gage in alake to monitor changes in lake water level.