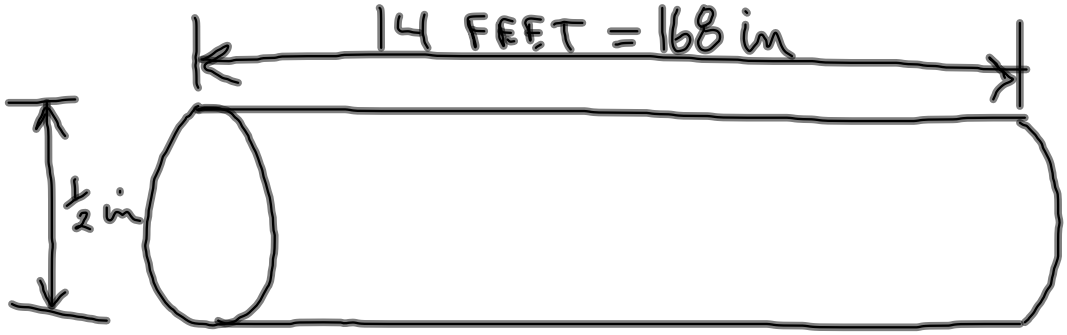
Flow Rate Problems Feb 9/09

A 1/2 inch diameter pipe, which feeds a hot water tap is 14 feet from the hot water tank. How much water will be wasted each time the hot water tap is turned on?



$$V = \pi r^2 h$$

$$V = 3.14\left(\frac{1}{4}\right)^2(168)$$

$$V = 32.97 \text{ in}^3 \approx 33 \text{ in}^3$$

If the water flows at a rate of 5.5 in^3 per second, how long does it take for water to reach the tap?

$$33 \div 5.5 = 6 \text{ sec}$$

A paint shop has a room that measures 30m by 30 m and has a height of 10 m. The room needs its air replaced every two hours. If it were to be ventilated by a fan rated in cubic meters/minute, what minimum sized fan would be required?

$V = \ell \times w \times h$

$V = 30 \times 30 \times 10$

$V = 9000\ m^3$

$9000 / 2 = 4500\ m^3$ PER HOUR

1 HOUR = 60 MINUTES

$4500 \div 60 = 75\ m^3/min$

Ex #1 Q# 6, 8, 9, 10