Q = K \text{Head Difference} \cdot \text{Area} / \text{Distance between Heads}

Q = 0.01 \text{cm} \cdot 0.19 \text{ m} \cdot 6 \text{ cm} \cdot 0.75 \text{ cm} \cdot \frac{1 \text{ liter}}{1000 \text{ cm}^3} \cdot \frac{86400 \text{ sec}}{1 \text{ day}} = 1.17 \text{ liter/day}

Might vary up and down and order of magnitude

\text{http://en.wikipedia.org/wiki/Hydraulic_conductivity#Ranges_of_values_for_natural_materials}
Converting Units

3.6 feet >> to >> inches?

feet * 12 = inches

3.6 feet * \( \frac{12 \text{ inches}}{1 \text{ foot}} \) = 43 inches
3.6 cms = cubic meters per second ... to ... LPM = liters per minute?

cms * ?
you may know some relationships and take a long route

\[
\begin{align*}
3.6 \text{ m}^3 & \times \frac{100 \text{ cm}}{1 \text{ m}} \times \frac{100 \text{ cm}}{1 \text{ m}} \times \frac{100 \text{ cm}}{1 \text{ m}} \times \frac{1 \text{ ml}}{1 \text{ cm}^3} \times \frac{1 \text{ liter}}{1000 \text{ ml}} \times \frac{60 \text{ sec}}{1 \text{ min}} \\
&= 216,000 \frac{\text{liter}}{\text{min}} \\
&\approx 220,000 \frac{\text{liter}}{\text{min}}
\end{align*}
\]

OR:

\[
\begin{align*}
3.6 \text{ m}^3 & \times \frac{1000 \text{ liter}}{1 \text{ m}^3} \times \frac{60 \text{ sec}}{1 \text{ min}} \\
&= \approx 220,000 \frac{\text{liter}}{\text{min}}
\end{align*}
\]
Get a “feel” for Units and Magnitudes

How many minutes do you manage each day?

1440 min

1 day

How many seconds each day?

86,400 sec

1 day

How many gallons are in a cubic foot?

7.48 ft³

gal

How much does a cubic foot of water weigh?

62.4 lbs

ft³

If you stand on the foot bridge over Clear Creek today, how many cubic feet of water pass under you each second?

“google” : streamflow Clear Creek Golden CO

http://waterdata.usgs.gov/co/nwis/dv/?site_no=06719505&PARAMeter_cd=00060

How many gallons is that in a minute?
Large Volumes of Water are better understood in alternate units
Such as Acre-Feet
Work with someone nearby - Take 5 min to convert

5000 AFY = Acre feet per year > to > GPM Gallons per minute

Conversion books / Dictionary / Web Search

AFY * ? …. One source of information:
http://www.unc.edu/~rowlett/units/dictA.html

5000 acre-ft * 43560 ft^2 * 7.48 gallons * 1 hr * 1 day * 1 yr
yr 1 acre 1 ft^3 60 min 24 hr 365 day

~ 3000 gallon or with 1440 min & ~200 gal enough for
min day home-day ~22,000 homes

Handy Hydro Conversions:

7.48 gallons 62.4 lb 8.34 lb 86,400 sec 1440 min 1 m
1 ft^3 1 ft^3 1 gal 1 day 1 day 3.28 ft
ESTIMATE:
Flow from your kitchen faucet
Flow from your garden hose
Flow from a gasoline pump at a gas station
Flow in Clear Creek Today

ESTIMATE:
Flow from your kitchen faucet ~ 2-3 GPM
Flow from your garden hose ~ 2-5 GPM
Flow from a gasoline pump ~ 10 GPM
Flow in Clear Creek Today – what was it?