MiSP Permeability and Porosity Assessment L2

Name _____ Date _____

Sand from Sakrete Inc. is available in three "grades": fine, medium, and coarse. The particle sizes of the three grades of sand are:

Fine	0.2 mm
Medium	0.5 mm
Coarse	0.8 mm

People using sand under brickwork or cement, or in other applications, are often concerned with permeability, water retention, and porosity.

Company scientists tested the different types of sand with columns similar to the ones used in class. Answer the following questions about their research:

1. Describe the steps a scientist would take to find how much water would be retained by the 0.2 mm particle size of fine sand in a plastic column.

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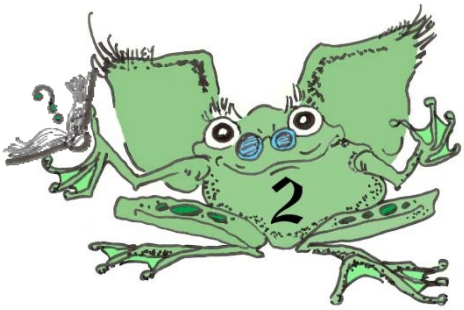

2. The scientist found that the porosity of the medium sand was 14%. What is the porosity of the fine sand and the coarse sand? Explain your answers.

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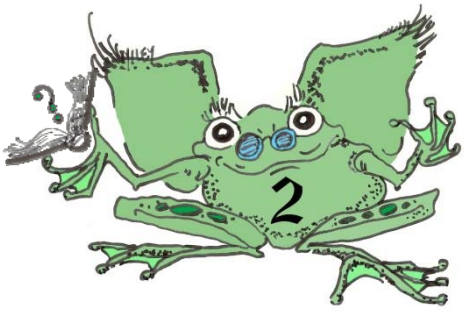
3. The scientist measured the permeability of the three sands. The data is on this chart:

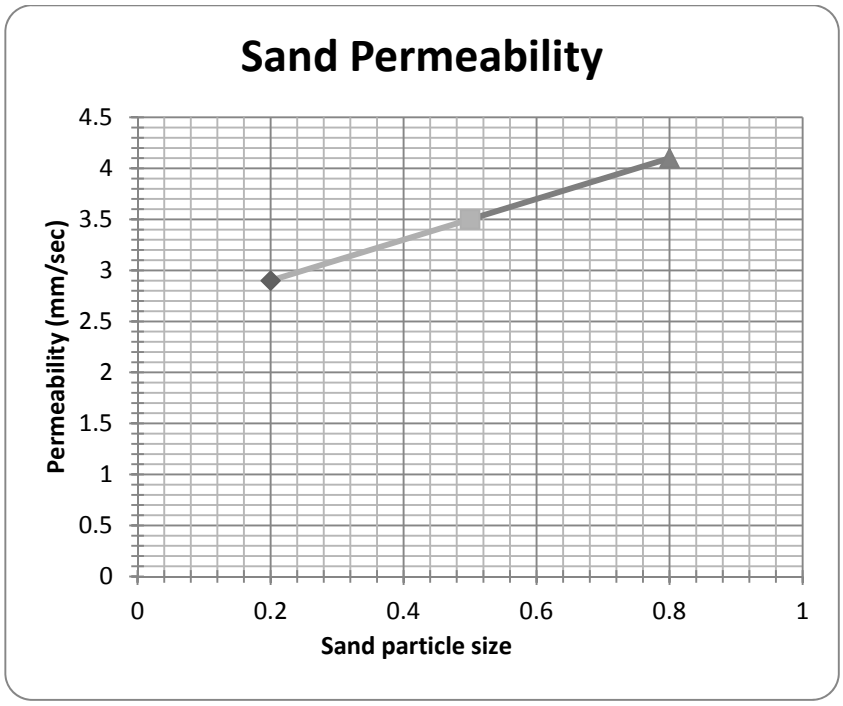
Sand type	Particle size (mm)	Permeability (mm/second)
Fine	.2	2.9
Medium	.5	3.5
Coarse	.8	4.1

What is the relationship between particle size and permeability?

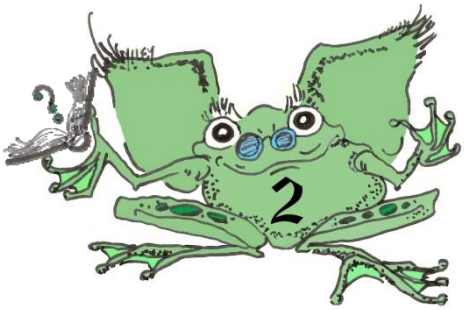
As sand particle size increases, the permeability _____.



The data from the chart was graphed:



4. Calculate the unit rate of change (slope) of the sand permeability data. Show your work.



5. Why is the unit rate of change a positive (+) number?

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