

General Thinking

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“Mathematics is the queen of the sciences.” Carl Friedrich Gauss.

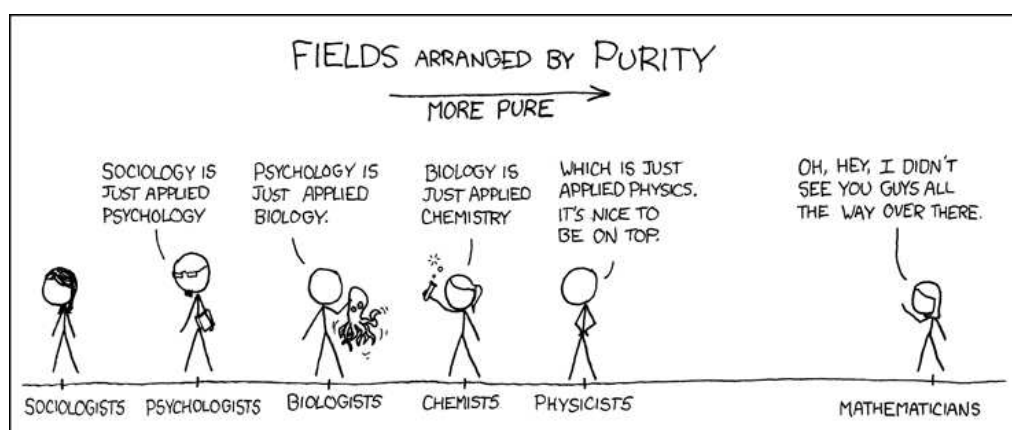


Figure 1: xkcd webcomic: Purity

Class Discussion

Why are manhole covers round?

<http://blog.tanyakhovanova.com/?p=50>

Warm Up

Exercise 1. How many people is “two pairs of twins twice”?

Exercise 2. How many months have thirty days in them?

Problem Set

Exercise 3. The day before two days after the day before tomorrow is Monday. What day is it today?

Exercise 4. How would you design Bill Gates's bathroom?

Exercise 5. A half-empty glass is the same as a half-full glass. Right? If halves are equal, then wholes must be equal too. Hence, an empty glass is the same as a full glass. Find a mistake in this reasoning.

Exercise 6. Can you use five odd digits in a summation to make 14?

Exercise 7. At what age is the average child half the height that he or she will be as an adult?

Exercise 8. How many gas stations are there in the US?

Exercise 9. How many points are there on the globe where, by walking one mile south, one mile east, and one mile north, you reach the place where you started?

Exercise 10. How many times a day do a clock's hands overlap (we consider only a minute hand and an hour hand)?

Exercise 11. How do you cut a rectangular cake into two pieces of equal area when someone has already removed a rectangular piece from it? The removed piece can be of any size or orientation. You are allowed just one straight cut.

Exercise 12. If a clock takes six seconds to strike six, how long does it take to strike twelve?