

Mathematics 3010, Summer 2009: Chapter 2 Problems

History

1. Name two areas of study that the Pythagoreans considered "mathematical".
2. What is the smallest number, according to Aristotle?
3. Name two teachers hired by Plato.
4. Name a famous student of Aristotle.
5. What were the five subjects in Plato's program of mathematics education?
6. How do we know that "squaring the circle" was a popular question in Greece?
7. Name four of Zeno's paradoxes.
8. List three discoveries of Thales.

Mathematics

1. Write 23,213 in Greek cipher.
2. Find a number greater than one that is both triangular and square.
3. Compute the length of any segment connecting two vertices of a cube.
4. Check that the formula on p. 50 for n an odd number gives a Pythagorean triple. Use the formula to find a Pythagorean triple of three digit numbers.
5. Check that the formula on p. 50 for m an even number gives a Pythagorean triple. Use the formula to find a Pythagorean triple of three digit numbers.
6. Prove that if one member of a Pythagorean triple is odd, then two members are odd and one is even.
7. Following triangular and square numbers, make a definition of a *pentagonal number*, and list the first four. Extra: can you find a formula for the n th pentagonal number?
8. Write $8/9$ as the Greeks would (you will need to find a unit fraction representation).