

Follow-up questions: Euclidean geometry

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Question 1 Prove that a convex quadrilateral is a parallelogram if and only if the opposite sides are congruent.

Question 2 Prove the parallel projection theorem.

Question 3 Prove the height theorem and the leg theorems. How to conclude Pythagorean theorem?

Question 4 What does an isometry mean?

Question 5 Define the reflection across a line.

Question 6 Prove the fundamental theorem of plane isometries.

Question 7 Define translations and rotations in the plane. What does the "free choice of axis" mean in case of translations?

Question 8 List the possible types of plane isometries.

Question 9 List the possible types of space isometries.

Question 10 What is the general notion of congruence?

Question 11 What does a similarity mean?

Question 12 What is the fixed point theorem of similarities?

Question 13 Explain how the possible types of plane similarities can be concluded?

Question 14 What is the general notion of similarity?

Question 15 Present the axioms of area measurement of polygonal domain in the plane.

Question 16 What does a Jordan measurable set mean in the plane and what is the Jordan measure?

Question 17 Explain Cavalieri's principle.

Question 18 How to derive the volume of a sphere?