

7. Circumcenter & Circumcircle: Answer Key

RECAP 1: Check Your Understanding

Check the correct answers. Explain your choice and provide details.

(27 pts)

1. A *circle* is: (4 pts)
 - I. A figure with infinitely many lines of symmetry.
 - II. The points in the plane that are equidistant from a given point, called the center of the circle.
 - III. What you will obtain if you cut a sphere through its equator.
 - IV. A figure which looks the same no matter which part of it you look at: if you chop up a small piece in one part, it will fit perfectly in any other part of the figure. (Such figures are called *self-congruent*.)
2. Any *three* points: (4 pts)
 - I. Form a triangle.
 - II. Form a line.
 - III. Determine a circle that passes through them.
 - IV. Not necessarily any of the above.
3. A *unique* circumcircle means: (4 pts)
 - I. A special circumcircle.
 - II. A non-existing circumcircle.
 - III. Exactly one circumcircle.
 - IV. More than one circumcircle.
4. Finding the exact *center* of a circle: (4 pts)
 - I. Is impossible.
 - II. Can be accomplished by successively approximating the location of the center and getting closer and closer.
 - III. Is an Euclidean construction.
 - IV. Can be done by intersecting two perpendicular bisectors.
5. A *square* is: (7 pts)
 - I. What you call someone who is boring.
 - II. A quadrilateral with four right angles.
 - III. A parallelogram that is a trapezoid.
 - IV. A rhombus with a right angle.
 - V. A rectangle with two equal adjacent sides.
 - VI. A quadrilateral whose diagonals are perpendicular, bisects each other, and have the same length.
 - VII. A polygon with several lines of symmetry.
6. The *Vitruvian Man* is: (4 pts)
 - I. A man with four legs and four arms.
 - II. What everyone should look like.
 - III. An artistic model of the ideal proportions the human body should have according to Vitruvius.
 - IV. A person simultaneously inscribed in a circle and in a square.