8. Distance, Altitude & Orthocenter: Answer Key

RECAP 1: New Vocabulary and Ideas
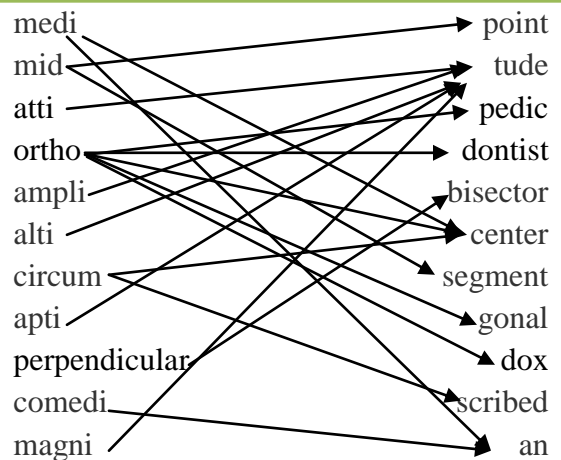
Check ALL correct answers. Explain your choice and provide details. **(15 pts)**

1. Which of the following are special *centers* for a triangle?
   - (I.) The intersection of the *medians* in a triangle.
   - II. The intersection of the *midsegments* of a triangle.
   - (III.) The intersection of the *altitudes* of a triangle.
   - IV. The intersection of the *diagonals* of a triangle.
   - (V.) The intersection of the *perpendicular bisectors* of the sides of a triangle.

2. To *drop a perpendicular* means:
   - I. To drop your right triangle.
   - (II.) To draw a perpendicular from a point to a line.
   - III. To go vertically down from a point.
   - (IV.) To draw the shortest route from a point to a line.
   - (V.) Half of the above.

3. The sentence "The orthocenter is *outside* your triangle.":
   - I. Refers to a triangle *without* an orthocenter.
   - II. Is true for *every* triangle.
   - III. Makes *no* sense.
   - IV. Indicates that the triangle is *right*.
   - (V.) Implies there is an *obtuse* angle somewhere.

RECAP 2: Matching Words

Connect each word or part of a word on the left with its all possible continuations on the right and explain the meaning of the resulting word or expression.

(51 pts: 1 pt for word, 2 pts for definition)

Left	Right
medi	point
mid	tude
atti	pedic
ortho	dontist
ampli	bisector
alti	center
circum	segment
apti	gonal
perpendicular	dox
comedi	scribed
magni	an

1. *median*: a segment connecting a vertex of a triangle with the midpoint of the opposite side;

2. *medicenter:* the intersection point of the three medians in a triangle;

3. *midpoint:* the point in the middle of a segment;

4. *midsegment:* the segment connecting two midpoints of sides in a triangle;

5. *attitude:* the way you think and feel about someone or something;

6. *orthodontist:* a specialists who works in the branch of dentistry that deals with helping teeth to grow straight;

7. *orthocenter:* the intersection of the three altitudes in a triangle;

8. *orthogonal:* perpendicular; also straight or right;

9. *orthodox:* accepted as true or correct by most people; accepting and closely following the traditional beliefs and customs of a religion;

10. *orthopedics:* the branch of medicine that deals with the prevention or correction of injuries or disorders of the skeletal system and associated muscles, joints, and ligaments; *orthopedic:* (adjective) relating to orthopedics, e.g., orthopedic shoes.

11. *amplitude:* the extent or range of a quality, property, process, or phenomenon;

12. *altitude:* the segment that starts at a vertex of a triangle, is perpendicular to a side in a triangle, and stops at that side;

13. *circumcenter:* the center of the circumcircle of a triangle;

14. *circumscribed:* a figure that passes through the vertices of another figure and contains it;

15. *aptitude:* a natural ability, capacity for learning;

16. *perpendicular bisector:* a line that is perpendicular to and bisects a segment;

17. *comedian:* a person who performs in front of an audience and makes people laugh;

18. *magnitude*: the size, extent, or importance of something.