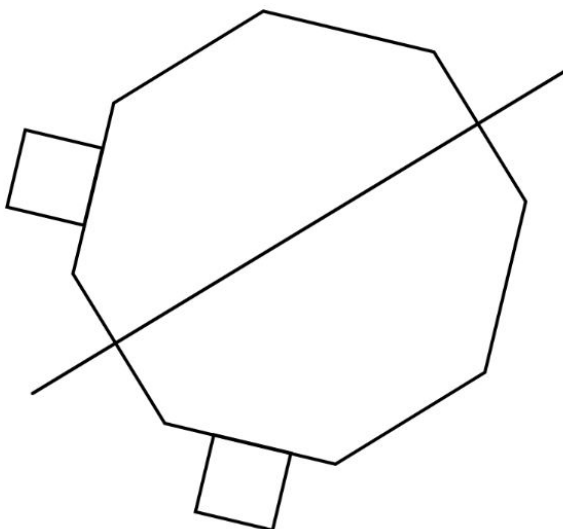# Geometry Homework #18 – Answer Key

1) Line Symmetry

2) Triangles ABD and CDB both share side BD so segment BD is congruent to BD. Since segment BD is a median, segments AD and CD are congruent and it is given that segments AB and CB are congruent. Therefore, triangles ABD and CDB are congruent by the SSS Theorem.

3) Triangles ABC and CDA both share side AC so segment AC is congruent to AC. Angle ACB is congruent to angle CAD because the lines are parallel and they are alternate interior angles. Since it is given that angle B is congruent to angle D, triangles ABC and CDA are congruent by the AAS Theorem.

4) Even though you can match three angles in the one triangle with three corresponding angles in the other, triangles ABE and DCE are not necessarily congruent because there is no AAA Theorem. A counterexample drawing would look something like this:
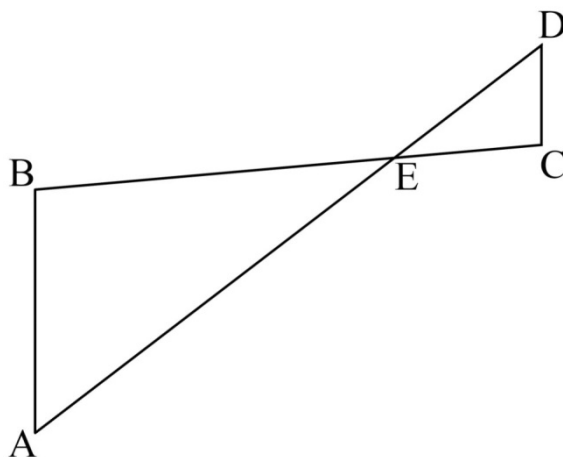
5) $(3.9, 13.8)$

6) $(x+3)^2 + (y-5)^2 = 64$

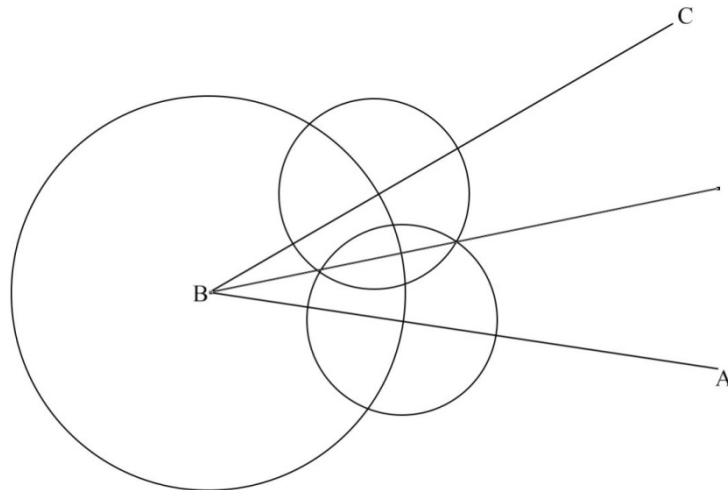7) $\dfrac{(x-6)^2}{49} + \dfrac{(y+4)^2}{9} = 1$

8) Your construction should resemble:
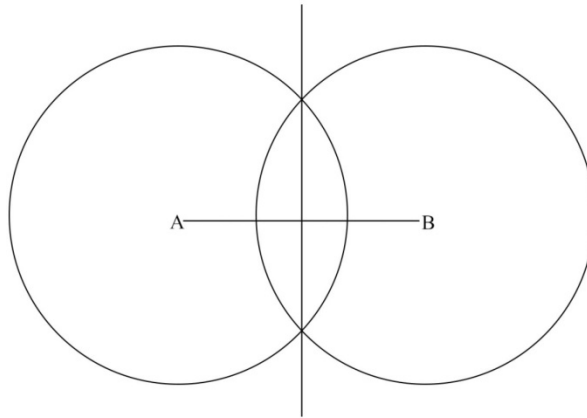
9) Radius = 4 and the center is $(5,-6)$
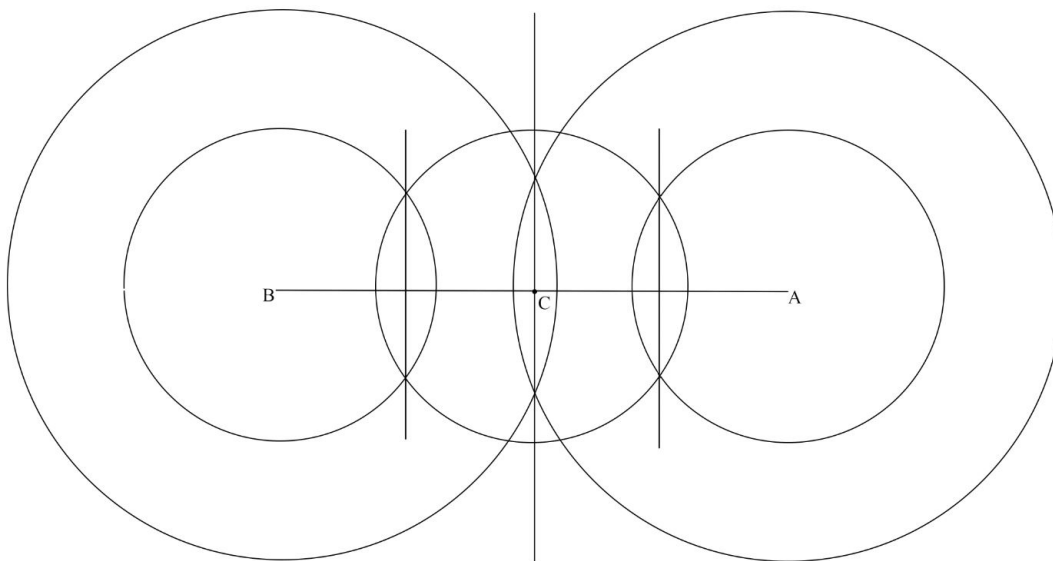10) Minor axis = 10, major axis = 18, and the center is $(-4,1)$
11) Your construction should resemble:

12) $(x-7)^2 + (y-9)^2 = 36$

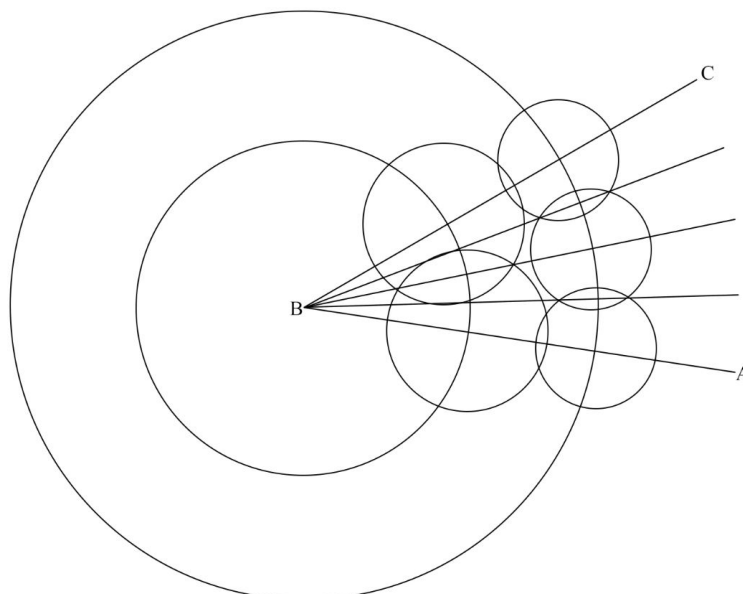13) $\dfrac{(x+3)^2}{16} + \dfrac{(y+2)^2}{81} = 1$
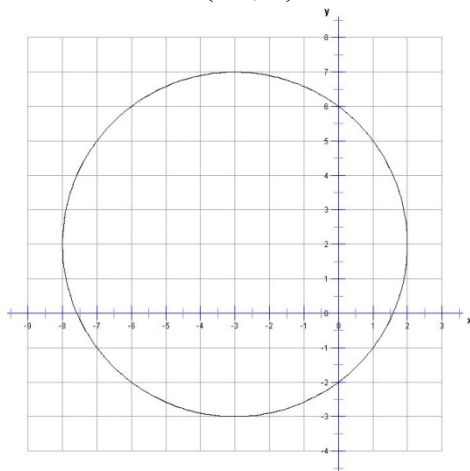
14) Your construction should resemble:

15) Radius $= 6$ and the center is $(5,7)$

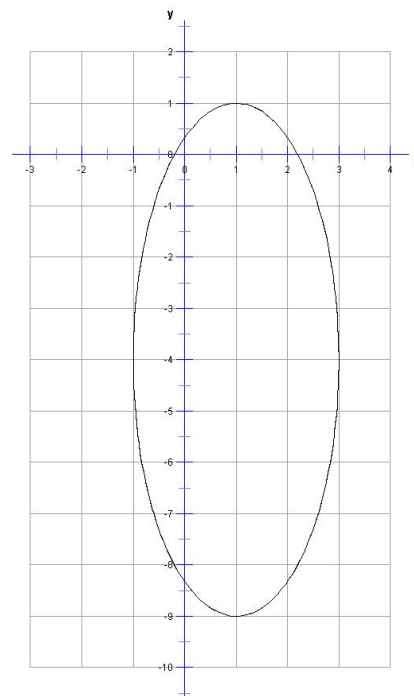16) Minor axis $= 6$, major axis $= 16$, and the center is $(6,-3)$

17) Your construction should resemble:

18) Diameter $= 10$ and the center is $(-3,2)$

19) Minor axis $= 4$, major axis $= 10$, and the center is $(1,-4)$

20) $\dfrac{(x+2)^2}{49} + \dfrac{(y+3)^2}{16} = 1$