Handout 4: Geometricky Proofs

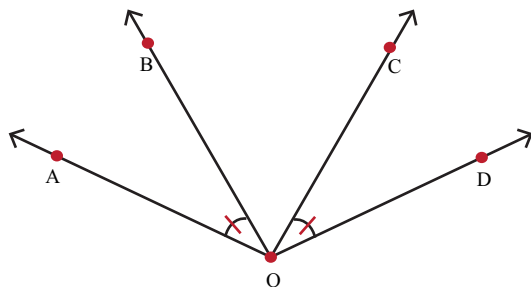

Figure 1

Figure 2

Given the Figure 1, prove that $\angle AOC \cong \angle BOD$ in questions 1-5.

1. What allows us to say that $\angle BOC \cong \angle BOC$?

2. What allows us to say that $\angle AOB + \angle BOC = \angle COD + \angle BOC$?

3. What allows us to say that $\angle AOB + \angle BOC = \angle AOC$?

4. What allows us to say that $\angle AOC = \angle BOD$?

5. What allows us to say that $\angle AOC \cong \angle BOD$?

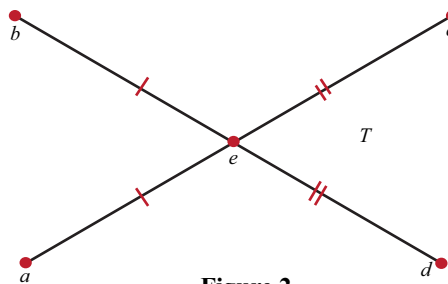For questions 6-10, refer to Figure 2 and prove that E is the midpoint of $\overline{BD}$

when given that E is the midpoint of $\overline{AC}$.

6. What allows us to say that $AE = CE$?

7. What does applying the definition of congruence to $\overline{AE} \cong \overline{BE}$ tell us?

8. We know that $AE = CE = BE$. What other length is the same as these three?

9. Which two lengths are we interested in setting equal to each other?

10. If E is the midpoint of $\overline{BD}$, what must be true according to the definition of midpoint?