a. From the definition of bisect in Problem 2, what can you say about $\angle 1$ and $\angle 2$? About $\angle 3$ and $\angle 4$?

$\angle 1 = \angle 2$

$\angle 1 + \angle 2 + \angle 3 + \angle 4 = 180^\circ$ $\quad 180^\circ = \angle 1 + \angle 2$

$180^\circ - \angle 3 - \angle 4 = \angle 1 + \angle 2$

$180^\circ = 2(\angle 3) + \angle 1 + \angle 2$ →

~~$\angle DOB = 180^\circ$ $\quad 180^\circ / 2 = 90^\circ$~~

~~$\angle 3 + \angle 4 = 180^\circ$~~

$180^\circ = 2(\angle 2) + \angle 3 + \angle 4$ →

b. Since AOB is a straight line, what kind of angle is $\angle AOB$?

Straight angle (180°).

c. What is the sum of $\angle AOD$ and $\angle DOB$?

As before in the solution of problem a, it follows:

$\angle 1 + \angle 2 + \angle 3 + \angle 4 = 180^\circ = \angle AOD + \angle DOB$

d. ~~The sum of $\angle 2$~~ How is angle 2 related to $\angle AOD$?

$\angle AOD = \angle 2 + \angle 1$ $\quad \angle 2 = \angle AOD - \angle 1$

e. $\angle 3$ is what part of $\angle DOB$?

$\angle 3 = \angle DOB - \angle 4$ $\quad \angle 4 = \angle 3$ $\quad \angle 3 = \frac{1}{2} \angle DOB$

f. The sum of $\angle 2$ and $\angle 3$ is what part of $\angle AOB$?

$\angle AOB = \angle 1 + \angle 2 + \angle 3 + \angle 4$ $\quad \angle 3 = \angle 4$

$\angle AOB = \angle 1 + \angle 2 + \angle 3 + \angle 3$ $\quad \angle 1 = \angle 2$

$\angle AOB = 2(\angle 2) + 2(\angle 3)$ $\quad \angle 3 = \frac{1}{4} \angle AOB$

g. What kind of angle is half a straight angle?

Right angle (acute/sharp), 90°.

h. What kind of angle is $\angle EOC$?

~~Obtuse angle (blunt), therefore~~ Right angle, 90°.

i. Then what is true about lines EO and OC?

They are perpendicular since the four angles they form are equal.

j. If two angles whose sum is a straight angle are called supplementary, which angles in the figure are supplementary?

Since all four angles are equal parts of 180°, any sum of two of them shall result in a straight angle, therefore, all four are each other's supplementary angle.

2016/10/13