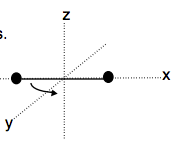
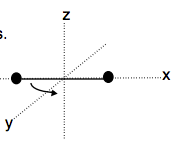
**Unit 6: Quiz 7a**

/5



Consider the diatomic molecule oxygen, O2, which is rotating in the xy plane about the z-axis passing through its center, perpendicular to its length. The mass of each oxygen atom is 2.66 x 10-26 kg, and at room temperature, the average separation between the two oxygen atoms is d = 1.21 x 10-10 m.

1. Calculate the moment of inertia of the molecule about the z-axis.
2. If the angular velocity of the molecule about the z-axis is 4.6 x 1012 rad/s, what is the rotational Kinetic Energy?

Consider the diatomic molecule oxygen, O2, which is rotating in the xy plane about the z-axis passing through its center, perpendicular to its length. The mass of each oxygen atom is 2.66 x 10-26 kg, and at room temperature, the average separation between the two oxygen atoms is d = 1.21 x 10-10 m.

1. Calculate the moment of inertia of the molecule about the z-axis.





1. If the angular velocity of the molecule about the z-axis is 4.6 x 1012 rad/s, what is the rotational Kinetic Energy?



