

# Worksheet: Polar Bonds and Polar Molecules



**Q1:** Which of the following molecules has a permanent dipole moment?

- A  $\text{PF}_3$
- B  $\text{PF}_5$
- C  $\text{AlF}_3$
- D  $\text{BF}_3$
- E  $\text{CF}_4$



Question Video

**Q2:** Which of the following molecules has a permanent dipole?

- A  $\text{C}_2\text{H}_2$
- B  $\text{CCl}_2\text{F}_2$
- C  $\text{SeS}_2$
- D  $\text{XeF}_2$
- E  $\text{CS}_2$

**Q3:** Which of the following molecules and ions does not have a dipole moment?

- A  $\text{XeF}_2$
- B  $\text{ClO}_2^-$
- C  $\text{ClF}_5$
- D  $\text{TeCl}_4^{2-}$
- E  $\text{PH}_2^-$

**Q4:** How can a molecule that contains polar bonds be nonpolar?

- A If there is hydrogen bonding
- B Molecules with polar bonds will always be polar overall.
- C If there is another polar bond somewhere in the molecule, pointing in the opposite direction
- D If the dipoles of the polar bonds are arranged such that they cancel each other out in the sum for the total dipole moment
- E If the molecule has mirror symmetry

**Q5:** Which of the following bonds is the most polar?

A C-H

B Cl-H

C C-C

D Br-H

E N-H

**Q6:** If directly bonded to sulfur, which of the following elements would produce a partial negative charge on the sulfur?

A O

B I

C N

D Br

E B

**Q7:** If directly bonded to sulfur, which of the following elements would produce a partial positive charge on the sulfur?

A P

B H

C O

D B

E C