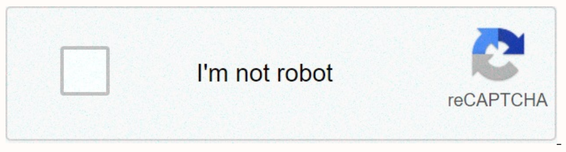


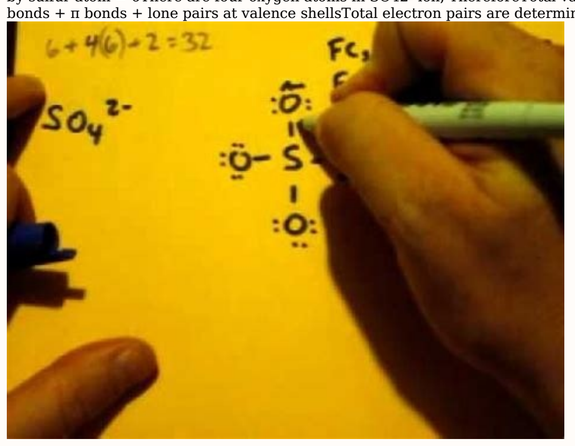
I'm not robot!

Lewis dot structure of so4

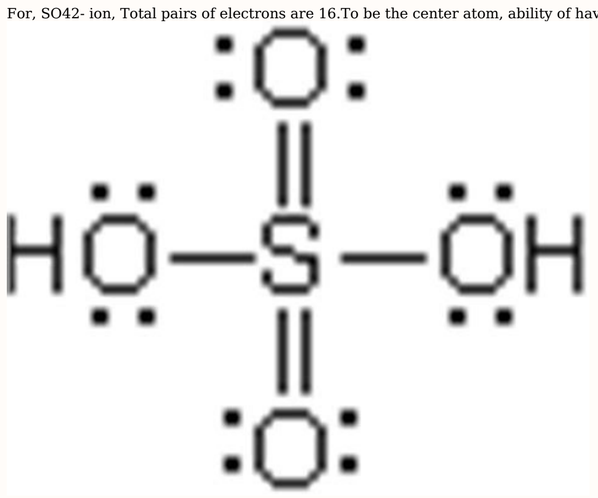
Lewis dot structure of so42- class 11.

Lewis dot structure for sn. Lewis dot structure of so42-. Lewis dot structure of so4 class 11. Lewis dot structure of so4 2 negative. Lewis structure of so4--. Lewis dot structure of so4 to negative. Lewis dot structure of h2so4.

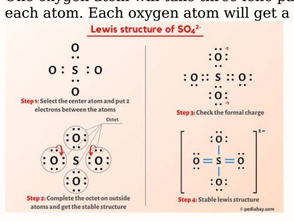
Lewis structure of sulfate ion is drawn in this tutorial step by step. Total valence electrons concept is used to draw the lewis structure of SO42-.
In lewis structure of sulfate ion, there should be charges on several atoms due to -2 charge.Sulfate ion is one of the oxyanion of sulfur. Sulfur is at +6 oxidation state in SO42-. Also, sulfate ion has a -2 charge.Lewis structure of SO42-There are two S=O bonds and two S-O bonds in sulfate ion lewis structure. Sulfur atom is the center atom and four oxygen atoms are located around sulfur atom. There are no lone pairs in the last shell of sulfur atom.Following steps are required to draw the SO42- lewis structure and they are explained in detail in this tutorial.Find total number of electrons of the valance shells of sulfur and oxygen atomsTotal electrons pairsCenter atom selectionPut lone pairs on atomsCheck the stability and minimize charges on atoms by converting lone pairs to bonds.Drawing correct lewis structure is important to draw resonance structures correctlyBoth Sulfur and oxygen atoms are located at VIA group in the periodic table. So, oxygen and sulfur atoms have six electrons in their valence shell.Total valence electrons given by sulfur atom = 6There are four oxygen atoms in SO42- ion, ThereforeTotal valence electrons given by oxygen atoms = 6 *4 = 24There are -2 charge on SO42- ion. Therefore there are two more electrons which comes from outside to contribute to the total valence electrons.Total valence electrons = 6 + 24 + 2 = 32Total valance electrons pairs = σ bonds + π bonds + lone pairs at valence shellsTotal electron pairs are determined by dividing the number total valence electrons by two.



For, SO42- ion, Total pairs of electrons are 16.To be the center atom, ability of having greater valance is important.



Therefore sulfur has the more chance to be the center atom (See the figure) because sulfur can show valance of 6. Maximum valnce of oxygen is two. So, now we can build a sketch of SO42- ion.There are already four S-O bonds in the above sketch. Therefore only twelve (16-4 = 12) valence electrons pairs are remaining.First, mark those twelve valence electrons pairs as lone pairs on outside atoms (on oxygen atoms).
One oxygen atom will take three lone pairs following the octal rule (oxygen atom cannot keep more than eight electrons in its valence shell).For four oxygen atoms, twelve electrons pairs are spent. Now all electron pairs are spent. There is no electron pairs to mark on sulfur atom.After, marking electron pairs on atoms, we should mark charges of each atom. Each oxygen atom will get a -1 charge and sulfur atom get a +2 charge. The overall charge of ion is (-1*4 + (+2)) = -2.When charges exist everywhere (on atoms) in the ion or molecule, that structure is not stable. We should try to reduce charges on atoms as much as possible.



Now, we are going to learn how these facts will affect on sulfate ion.Oxygen atoms should hold negative charges because electronegativity of oxygen is higher than sulfur. Otherwise, we can say, ability of holding negative charges is great in oxygen atoms than sulfur atoms.The drawn structure is not a stable one because all atoms have charges.Now, we should try to minimize charges by converting lone pair or pairs to bonds. So convert one lone pair of one oxygen atom to make a new S-O bond.Now there is a double bond between sulfur atom and one oxygen atom. Now, there are three S-O single bonds between sulfur atom and other three oxygen atoms.You see charges of atoms are reduced. Now, there is no charge in one oxygen atom and charge of sulfur atom is reduced from +2 to +1. So we have an stable ion than out previous one.Can I reduce charges of atoms furthermore?You should know, sulfur can keep more than eight electrons in its last shell. Therefore we can convert one more lone pair of another oxygen atom to a bond.In new structure, charges of atoms are reduced than previous structure. Now there are no any charge on sulfur atom and two oxygen atom. Also, only two oxygen atoms have -1 negative charges. Now you understand this structure of SO42- is more stable than previous structures. So, this structure has more chance to be the lewis structure of SO42- ion.Questionsthe total number of electrons in the valence shells of all atoms in the ion SO42- is?There are 32 electrons in valence shells of all atoms in the ion SO42- ion. Ask your chemistry questions and find the answersYes. Compare both lewis structures. Otherwise, we can think an oxygen atom of sulfate ion is replaced by a sulfur atom. Because both sulfur and oxygen belongs to group 6, their valence electrons in last shell is similar.