

Anatomical landmarks

Each tooth composes of crown and root portion. The crown is covered with enamel, and the root portion is covered with cementum.

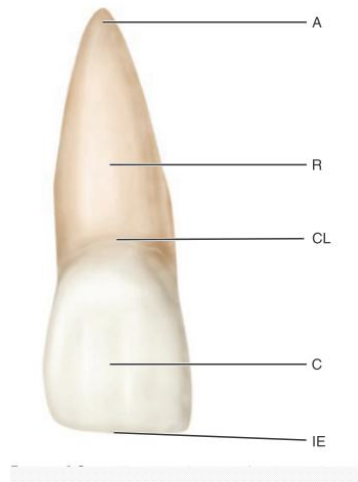
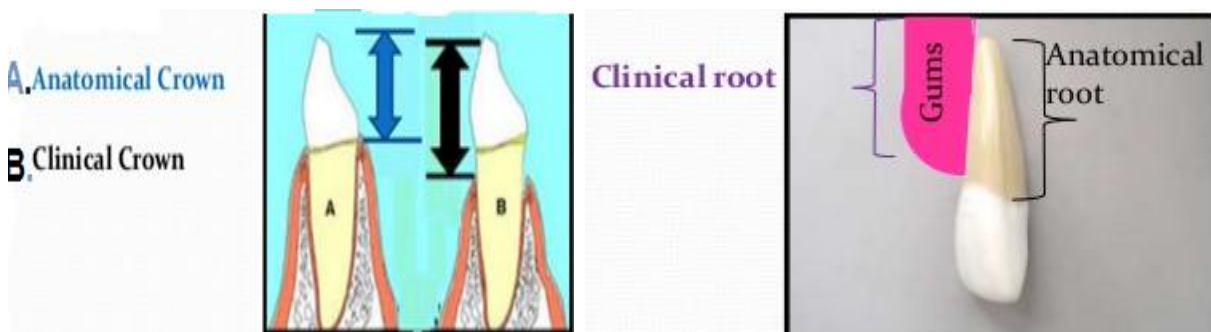


Figure (1) Maxillary central incisor (facial aspect). A, Apex of root; R, root; CL, cervical line; C, crown; IE, incisal edge.

- **Anatomical crown** -: That portion of the tooth which is covered by enamel.
- **Clinical crown**: That portion of the tooth which is visible in the mouth.
The clinical crown increase throughout life, while the anatomical crown is a constant value.
- **Anatomical root**: That portion of the tooth which is covered with cementum.
- **Clinical root**: That portion of the tooth which is visible in the mouth.

The clinical root is a changing entity, while anatomical root is constant.

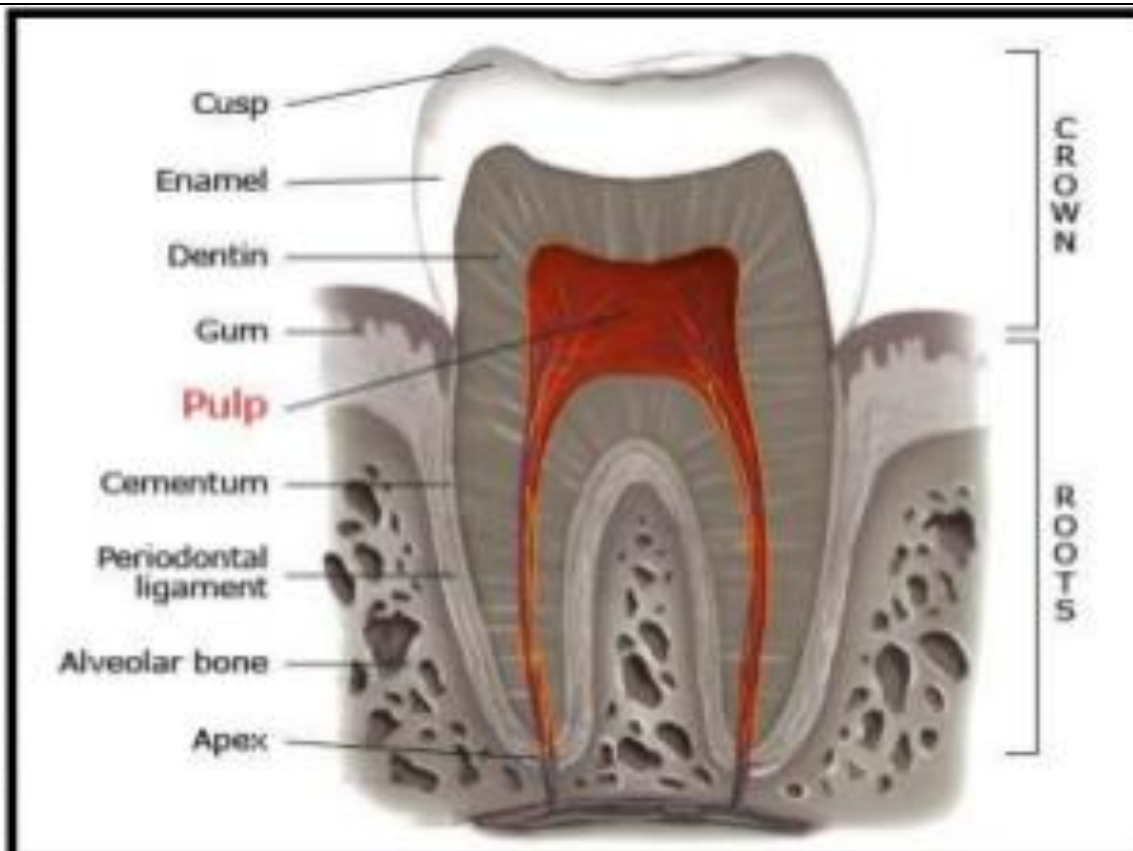
The clinical root may or may not correspond to the anatomical root.



The tooth has three types of hard tissue which are enamel, dentin & cementum and one type of soft tissue at the inner side of the tooth called pulp:

-Hard tissues:

1. **Enamel:** the hard, mineralized tissue which covers the dentin of the anatomical crown of a tooth.
2. **Dentin:** the hard tissue which forms the main body of the tooth. It surrounds the pulp cavity, and is covered by the enamel in the crown, and by the cementum in the anatomical root.
3. **Cementum:** the hard, bonelike tissue which covers the dentin of the anatomical root.



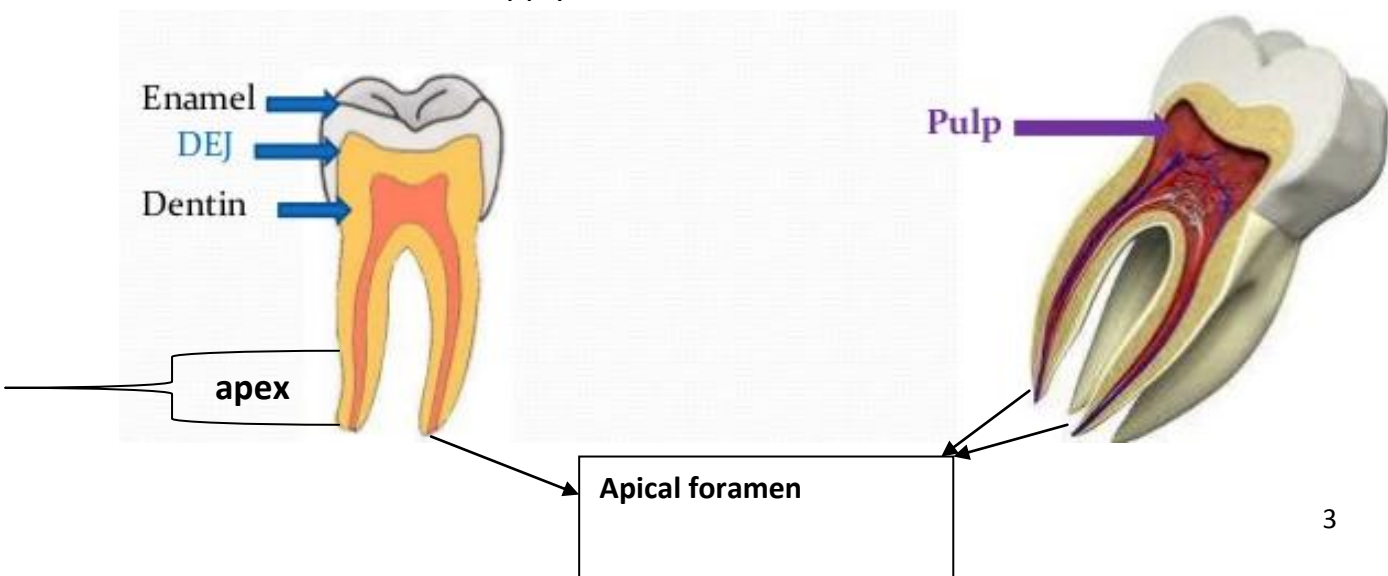
-Soft tissues:

pulp: The living soft tissue which occupies the pulp cavity of a vital tooth. It contains the tooth's nutrient supply in the form of blood vessels, as well as the nerve supply.

The pulp tissue consists of the following :

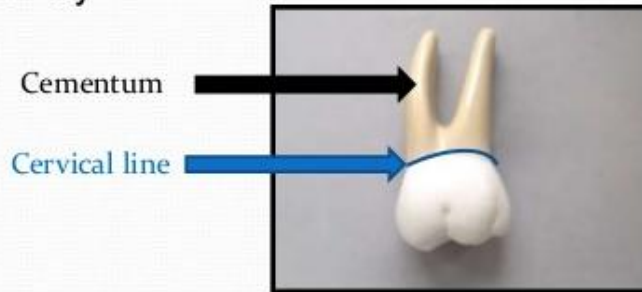
- a. **Pulp canal** - That portion of the pulp cavity which is located in the root of the tooth. and may also be called the root canal or radicular canal .
- b. **Pulp chamber** - The enlarged portion of the pulp cavity which is found in crown of the tooth.
- c. **Pulp horns** - The usually pointed incisal or occlusal elongations of the pulp chamber which often correspond to the cusps, or lobes of the teeth.

- ❖ **Apex:** the termination or the tip of the root.
- ❖ **Apical foramen:** is an opening found at the tip of the root of the tooth from which blood supply& innervations are reached to the tooth.

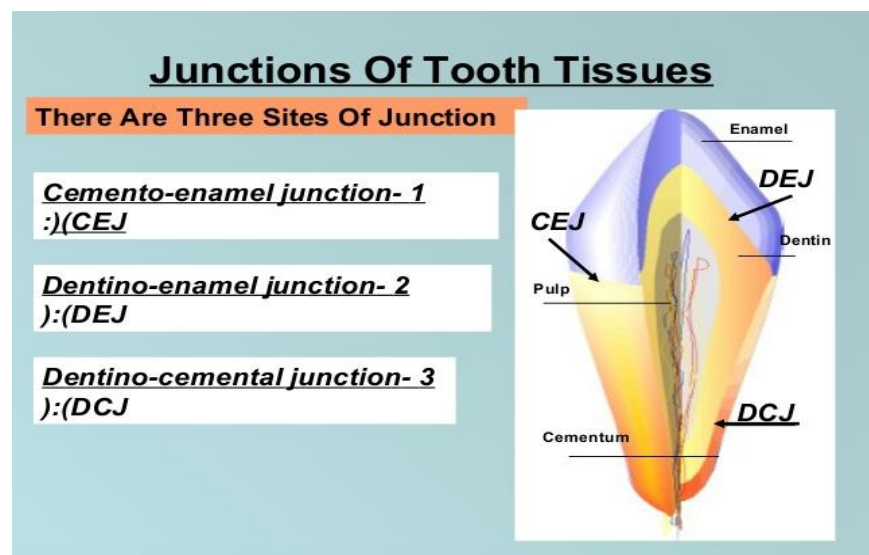


- ❖ **Cervical line (CEJ):** The identifiable line around the external surface of a tooth where the enamel and cementum meet. This junction also called the cervical line.

- Cervical line separates anatomical crown & anatomical root and is a constant entity



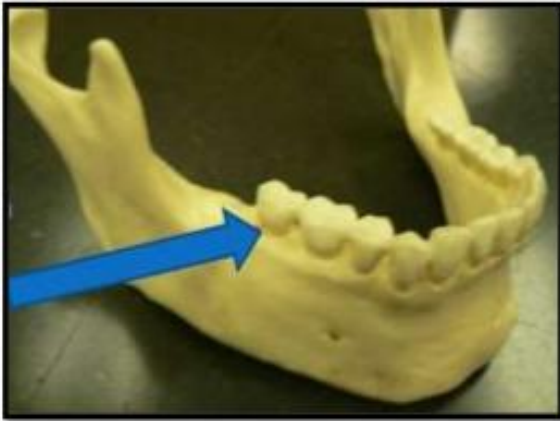
- ❖ **Dentino-enamel junction or DEJ** - The internal line of meeting of the dentin and enamel in the crown of a tooth.



- ❖ **Cemento-dentinal junction:** is the union of the dentin & cementum located at the apex of the root.

Supporting Structures of the tooth:

1. **Alveolar process:** The bony part which surrounds and supports all the teeth in each jaw .
2. **Alveolus:** The bony socket, or portion of the alveolar process, into which an individual tooth is set.



Alveolar process

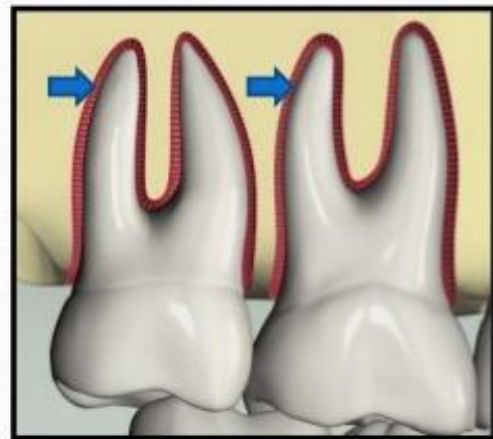


Alveolus

3. **Periodontal ligament (PDL) or membrane** - The fibrous attachment of the tooth cementum to the alveolar bone.
4. **Gingiva or "gums"**, or the fibrous tissue enclosed by mucous membrane that covers the alveolar processes and surrounds the necks of the teeth.



GINGIVA





PDL

Tooth surfaces:

1. **Anterior teeth** - All anterior teeth exhibit four surfaces and one incisal ridge. They are named as follows:

a. **Proximal surface: either:**

 **Mesial surface:** The surface toward the midline.

 **Distal surface:** The surface away from the midline



b. **facial (Labial) surface** :The outside surface which is toward the lips.

c. **Lingual surface:** The inside surface which is toward the tongue..

In the maxillary arch, the lingual surface is called the palatal surface.



e. **Incisal edge (or ridge) - The biting edge.**



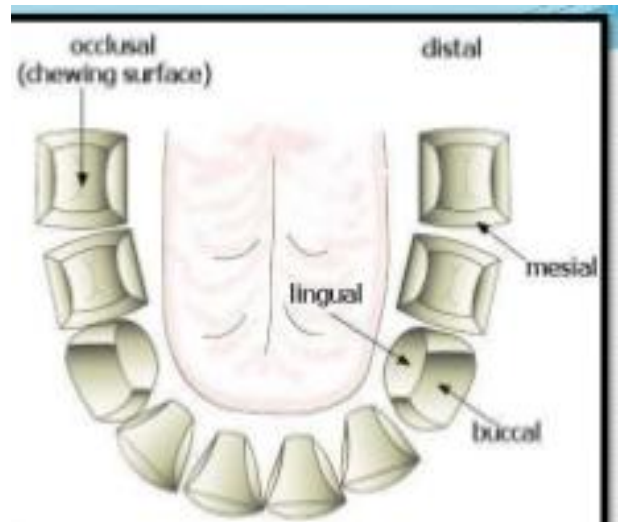
2. Posterior teeth - All posterior teeth exhibit five surfaces on their crowns:

a. Mesial, distal, and lingual or palatal - These surfaces may be defined like the corresponding surfaces of anterior teeth.

b. Buccal - The "outside" surface which is toward the cheek, and corresponds to the labial surface of the anterior teeth.

The term **facial surface** may be used for either the labial surface of anterior teeth or the buccal surface of posterior teeth.

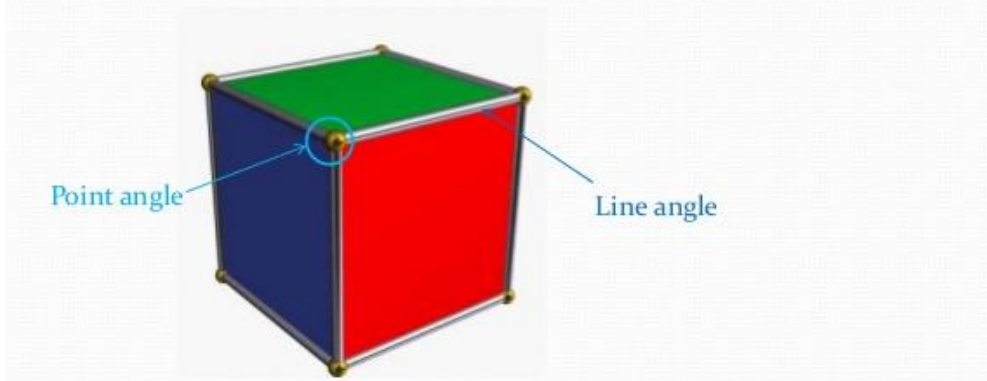
c. Occlusal - The chewing surface.



Note: Root surfaces are named exactly like the surfaces of crowns, except there is no incisal edge or occlusal surface.

Line angle & point angle

- When two surfaces of a tooth meet, a **line angle** is formed and when three surfaces meet a **point angle** is formed



When naming line angles and point angles, the names of the surfaces are combined by dropping the '.al' from the end of the first surface and substituting an 'o.' for example mesial → mesiolabial line angle. (the name of line or point angle ALWAYS starts from :

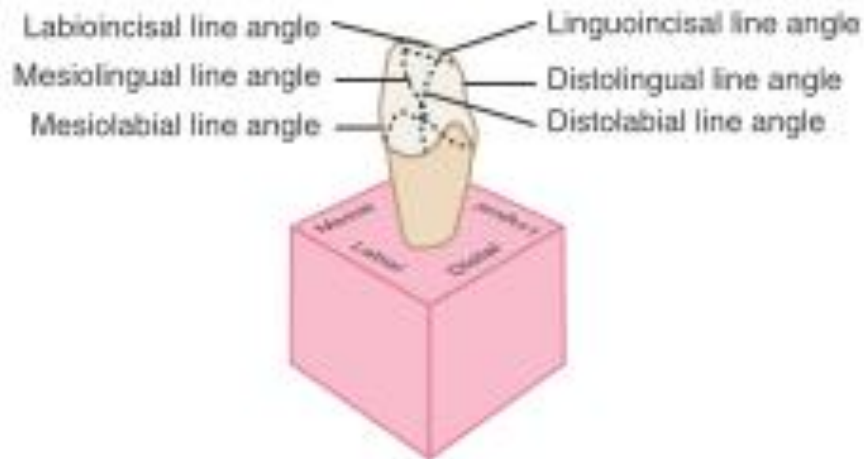
1. Proximal surface + Facial + occlusal .
or Lingual or incisal

1. Line angles of anterior teeth (6 line angles):

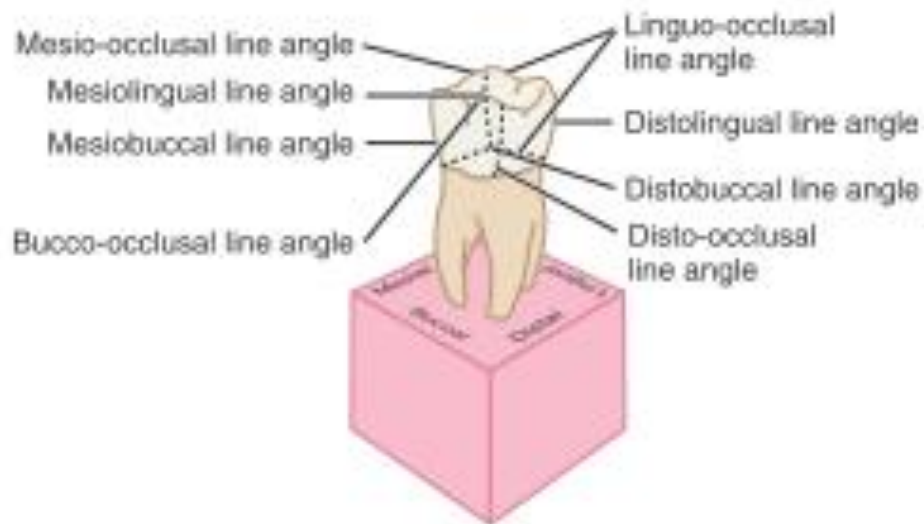
- | | |
|-------------------|------------------|
| 1) Mesiolabial. | 2) Mesiolingual. |
| 3) Distolabial. | 4) Distolingual. |
| 5) Linguoincisor. | 6) Labioincisor. |

2. Line angles of posterior teeth (8 line angles):

- | | | |
|--------------------|---------------------|--------------------|
| 1) Mesio-buccal. | 2) Mesio-lingual. | 3) Mesio-occlusal. |
| 4) Distobuccal | 5) Disto-occlusal. | 6) Distolingual. |
| 7) Bucco-occlusal. | 8) Linguo-occlusal. | |



A



Point angle: The point which is the junction of three surfaces, and takes the name of those three surfaces.

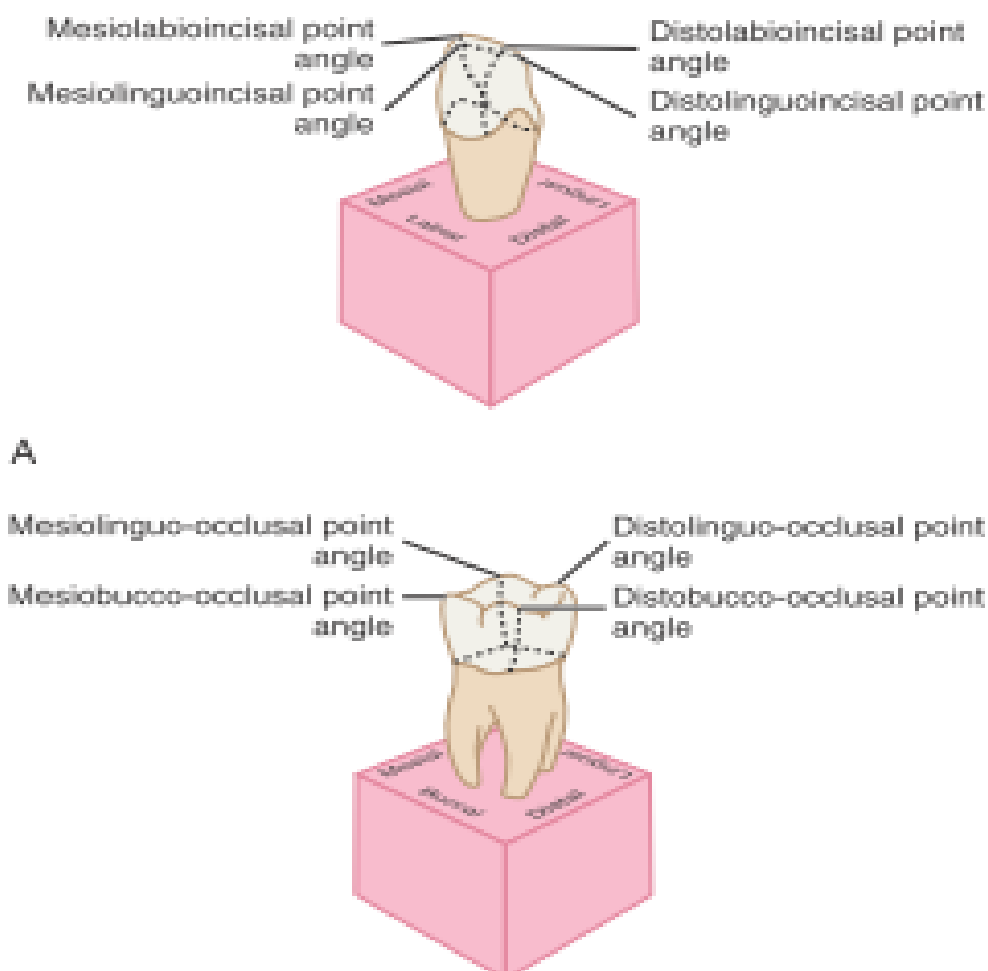
Point angles of each tooth are 4 in number:

1. Point angles of anterior teeth:

- | | |
|-----------------------|------------------------|
| A. Mesiolabioincisal. | B. mesiolinguoincisal, |
| C. distolabioincisal. | D. distolinguoincisal |

2. Point angles of posterior teeth:

- A. Mesio Bucco-occlusal. B. mesiolingual-occlusal ,
C. distobucco-occlusal. D. distolingual-occlusal



Figure(8) point angles of the teeth

Thirds of crown and root:

1. Crown - The crown surfaces of teeth are divided into **artificial** thirds, both horizontally and vertically. These thirds are named by their location, according to the surface which is being viewed. For example, the mesial crown surface of an anterior tooth exhibits labial, middle and lingual thirds, when divided vertically. When divided horizontally, this same mesial crown surface has incisal, middle, and cervical thirds.

2. Root - The root, from any aspect, is divided into horizontal thirds which are termed cervical, middle, and apical thirds. The term "cervix "or neck of the tooth, or in other words, toward the cervical line. The cervical thirds of the root and crown are thus adjacent to each other and are separated by the cervical line.



Figure (9) Division into thirds.