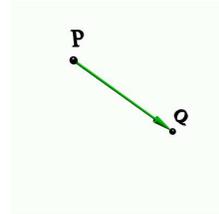


DISTANCE POINT-POINT (3D). If  $P$  and  $Q$  are two points, then

$$d(P, Q) = |P - Q|$$

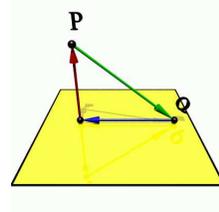
is the distance between  $P$  and  $Q$ .



DISTANCE POINT-PLANE (3D). If  $P$  is a point in space and  $n \cdot x = d$  is a plane containing a point  $Q$ , then

$$d(P, L) = |(P - Q) \cdot n|/|n|$$

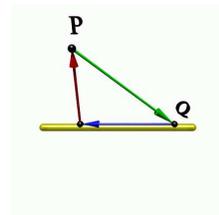
is the distance between  $P$  and the plane.



DISTANCE POINT-LINE (3D). If  $P$  is a point in space and  $L$  is the line  $r(t) = Q + tu$ , then

$$d(P, L) = |(P - Q) \times u|/|u|$$

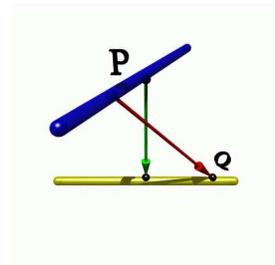
is the distance between  $P$  and the line  $L$ .



DISTANCE LINE-LINE (3D).  $L$  is the line  $r(t) = Q + tu$  and  $M$  is the line  $s(t) = P + tv$ , then

$$d(L, M) = |(P - Q) \cdot (u \times v)|/|u \times v|$$

is the distance between the two lines  $L$  and  $M$ .



DISTANCE PLANE-PLANE (3D). If  $n \cdot x = d$  and  $n \cdot x = e$  are two parallel planes, then their distance is  $(e - d)/|n|$ . Nonparallel planes have distance 0.

