

Distance

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def: given 2 points $P_1 = (x_0, y_0, z_0)$, $P_2 = (x_1, y_1, z_1)$

- distance between P_1 & P_2 is real quantity:

$$* d(P_1, P_2) = \sqrt{(x_0 - x_1)^2 + (y_0 - y_1)^2 + (z_0 - z_1)^2} *$$

* doesn't matter which one subtract from bc squared / always + *

* never = 0, unless points same *

ex 4) compute distance between $P_1 = (1, 0, 0)$, $P_2 = (0, 1, 2)$

$$\begin{aligned} d(P_1, P_2) &= \sqrt{(1-0)^2 + (0-1)^2 + (0-2)^2} \\ &= \sqrt{1 + 1 + 4} = \boxed{\sqrt{6}} \end{aligned}$$

