

## THE MEDIATOR PLAN OF A SEGMENT

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Let be  $A(1, 5, 1); B(2, 3, 4)$ .

Find the mediator plan of  $AB$ .

Let  $M$  be the middle of  $AB$ .

$$M\left(\frac{1+2}{2}; \frac{5+3}{2}; \frac{1+4}{2}\right) \Rightarrow M\left(\frac{3}{2}, 4, \frac{5}{2}\right)$$
$$\overrightarrow{AB} = (x_B - x_A)\vec{i} + (y_B - y_A)\vec{j} + (z_B - z_A)\vec{k}$$
$$\overrightarrow{AB} = (2 - 1)\vec{i} + (3 - 5)\vec{j} + (4 - 1)\vec{j}$$
$$\overrightarrow{AB} = \vec{i} - 2\vec{j} + 3\vec{j}$$

Let  $P$  be the mediator plan of  $AB$ .

$$P : (x - x_M) \cdot 1 + (y - y_M) \cdot (-2) + (z - z_M) \cdot 3 = 0$$

$$P : \left(x - \frac{3}{2}\right) + (y - 4) \cdot (-2) + \left(z - \frac{5}{2}\right) \cdot 3 = 0$$

$$P : x - \frac{3}{2} - 2y + 8 + 3z - \frac{15}{2} = 0$$

$$P : x - 2y + 3z - 1 = 0$$

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