



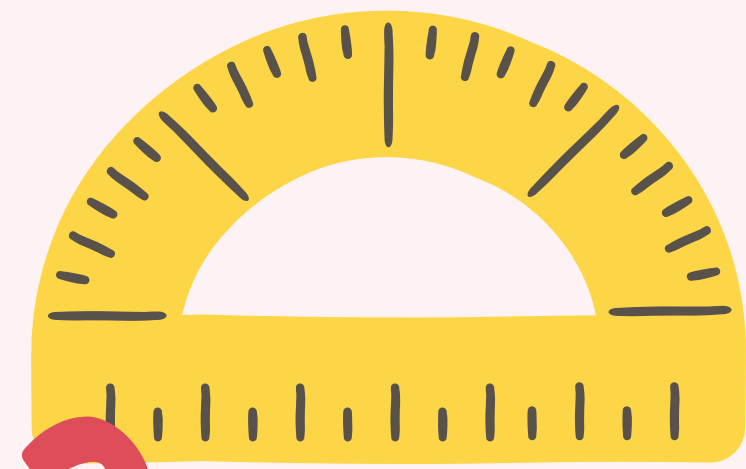
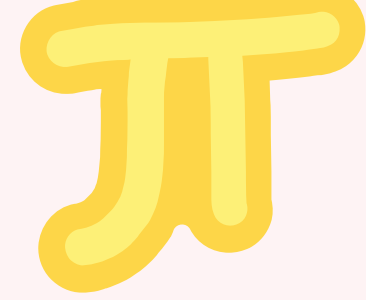
Dimensi Tiga

Aaron Oliver Jonathan A / 01
Clement Koedjinanto / 11
Joel Raphael Liangkey / 21
Kenrick Tjahyadi Ignazio / 24

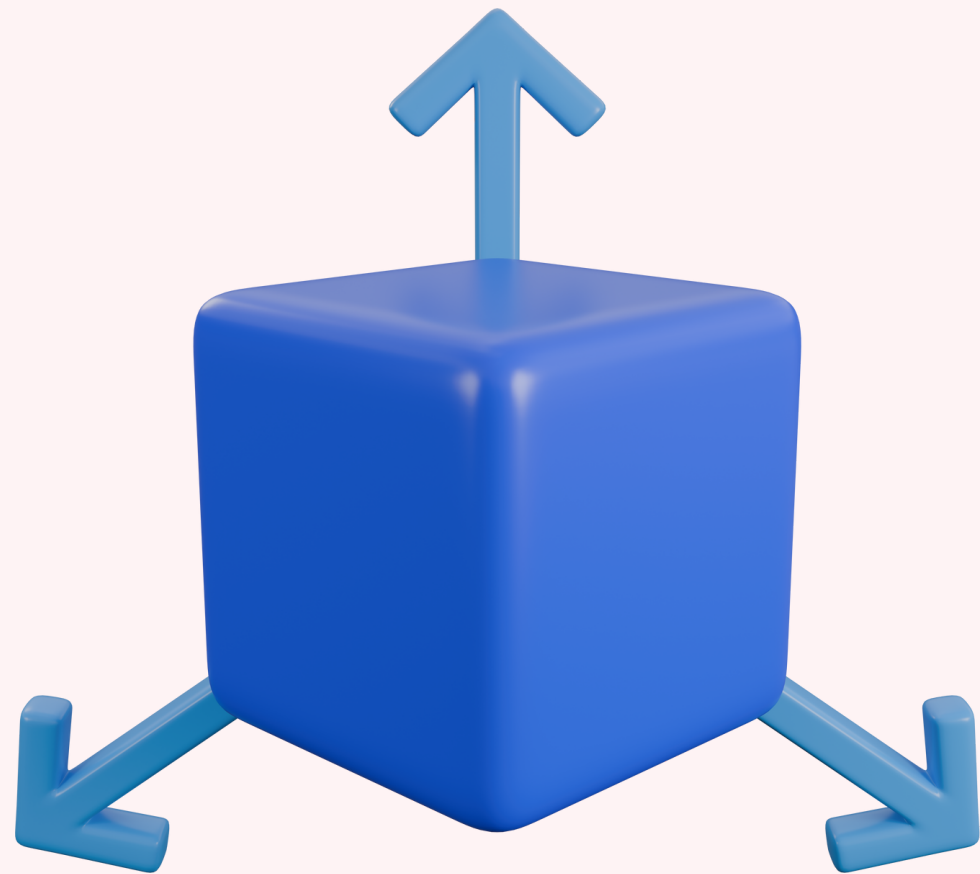


Dimensi Tiga

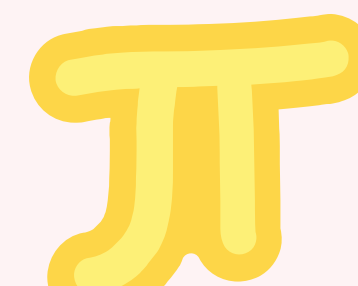
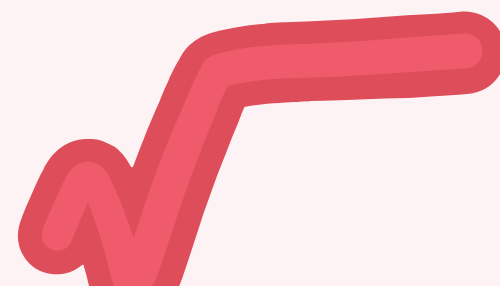
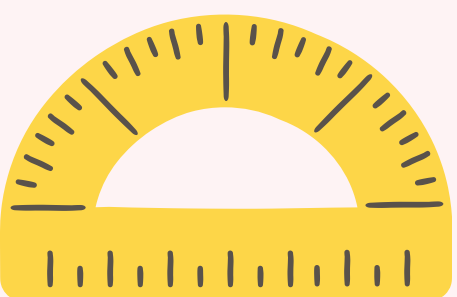
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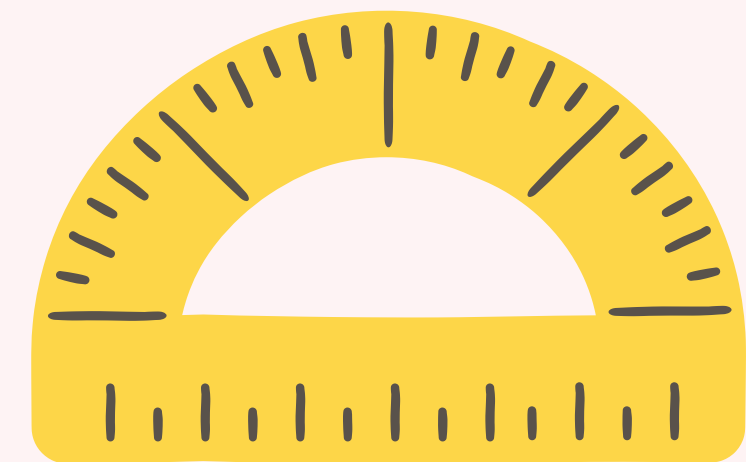
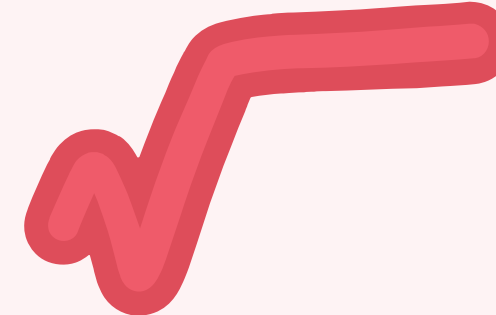
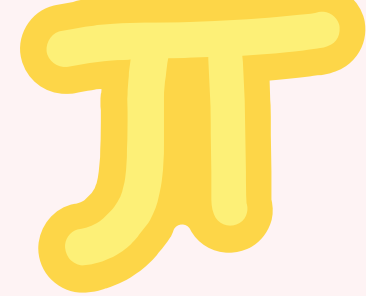


Apa Itu Dimensi Tiga ??

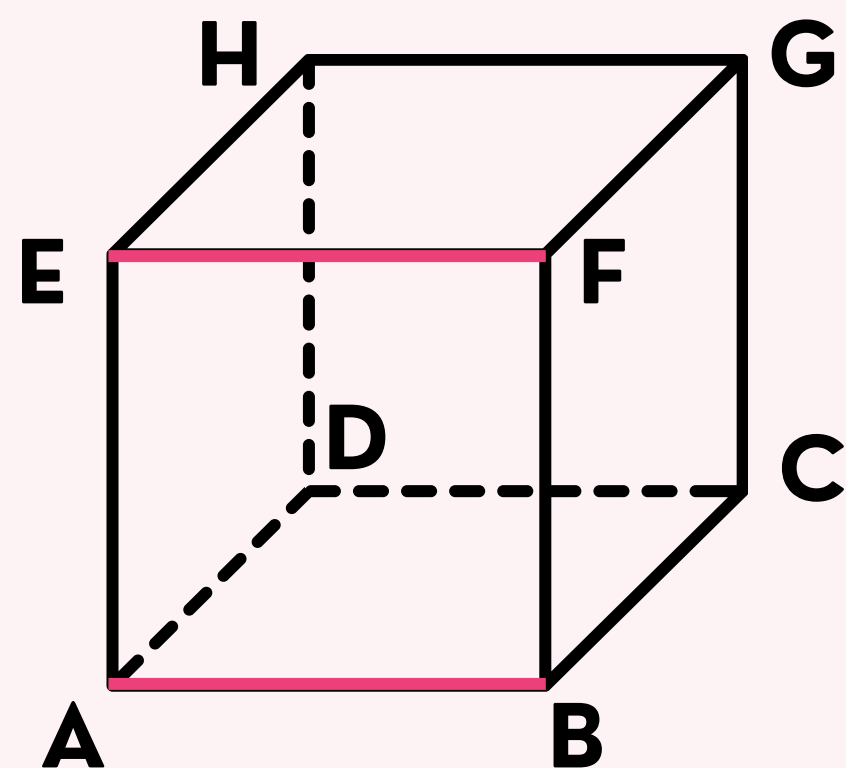


konsep yang merujuk pada ruang yang memiliki tiga ukuran atau arah yang berbeda. Biasanya, tiga dimensi ini adalah panjang, lebar, dan tinggi (atau kedalaman). Contoh yang paling umum adalah objek-objek di dunia nyata yang dapat kita lihat dan rasakan, seperti kotak, bola, dan piramida.



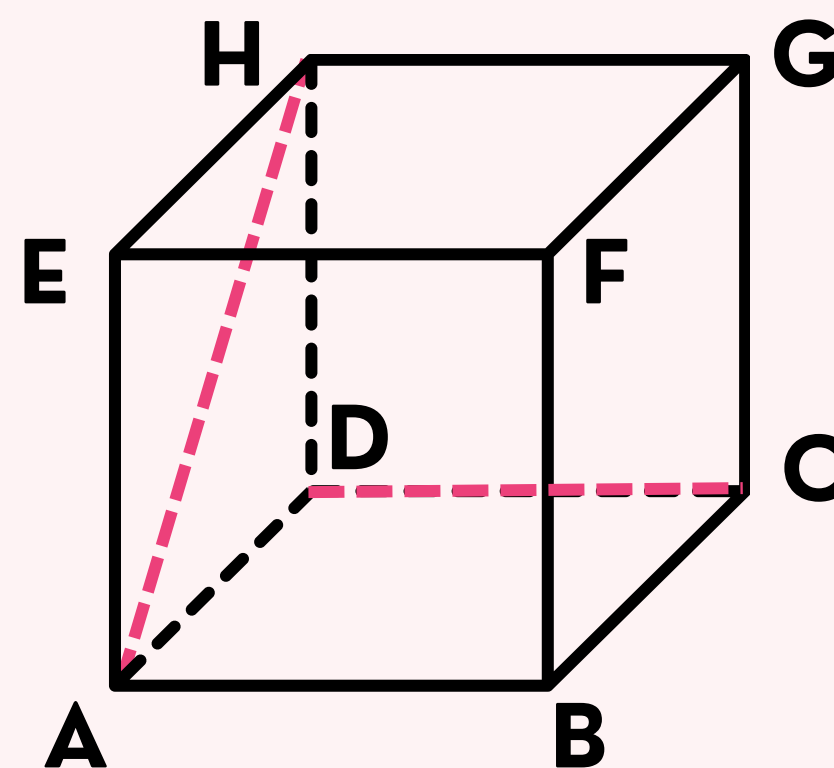
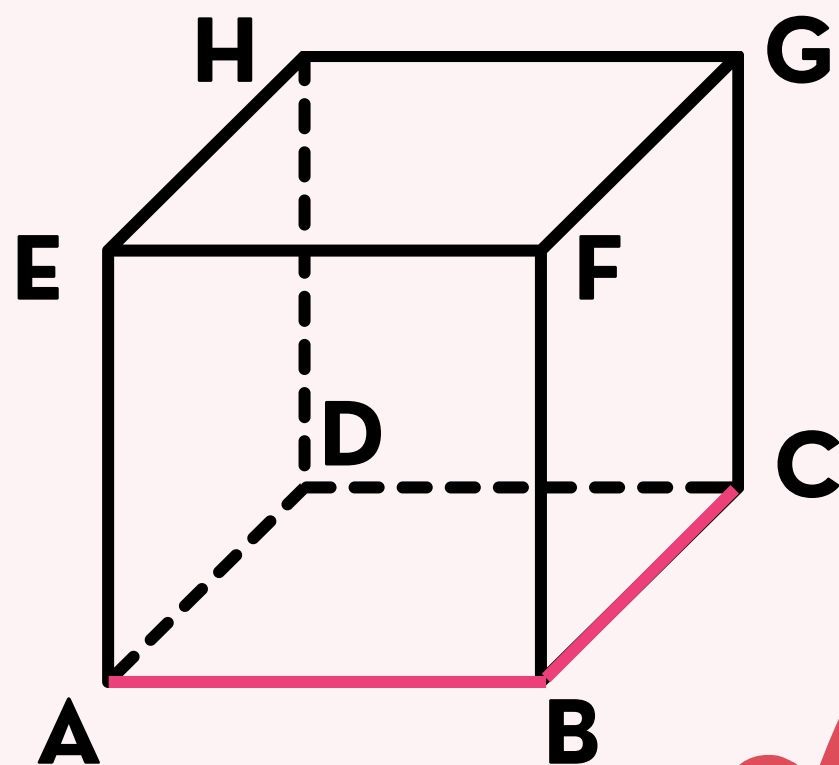


Hubungan Antar Garis



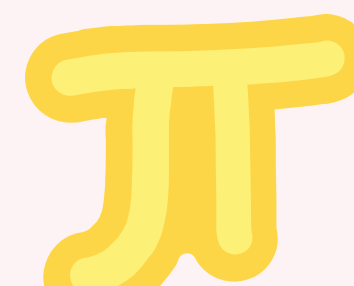
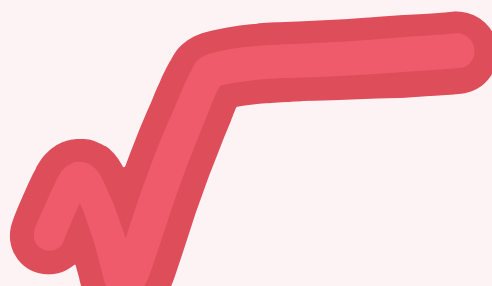
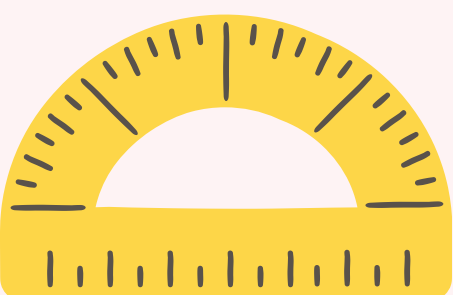
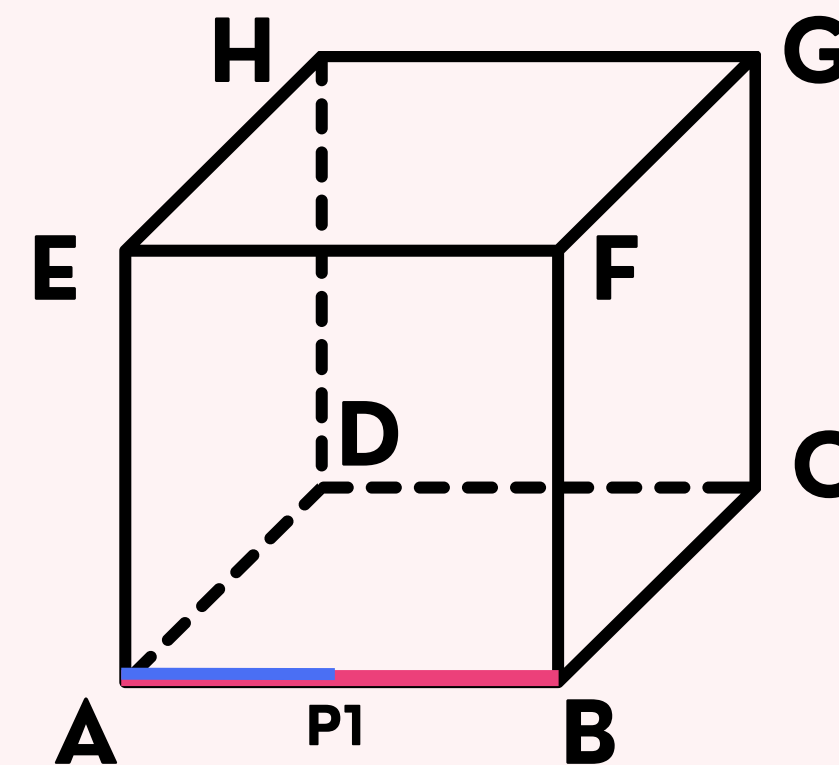
Sejajar

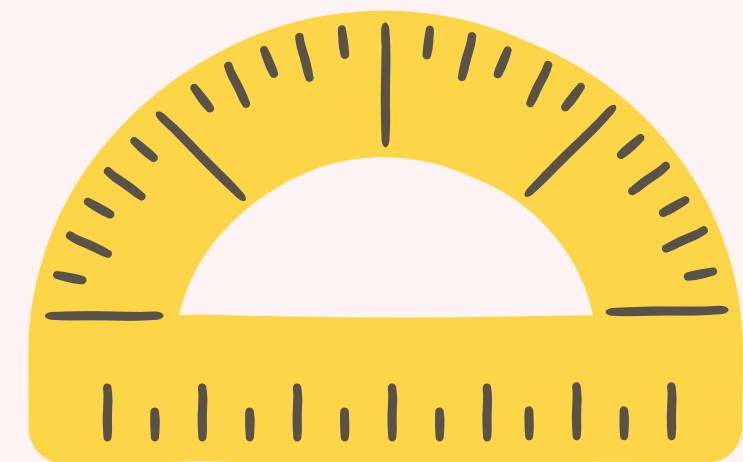
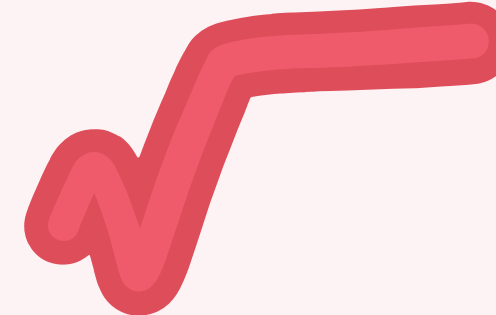
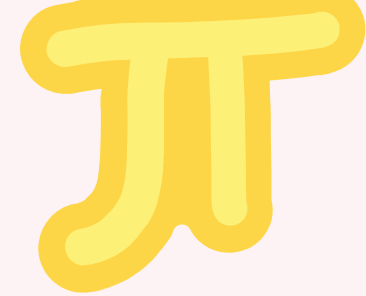
Berpotongan



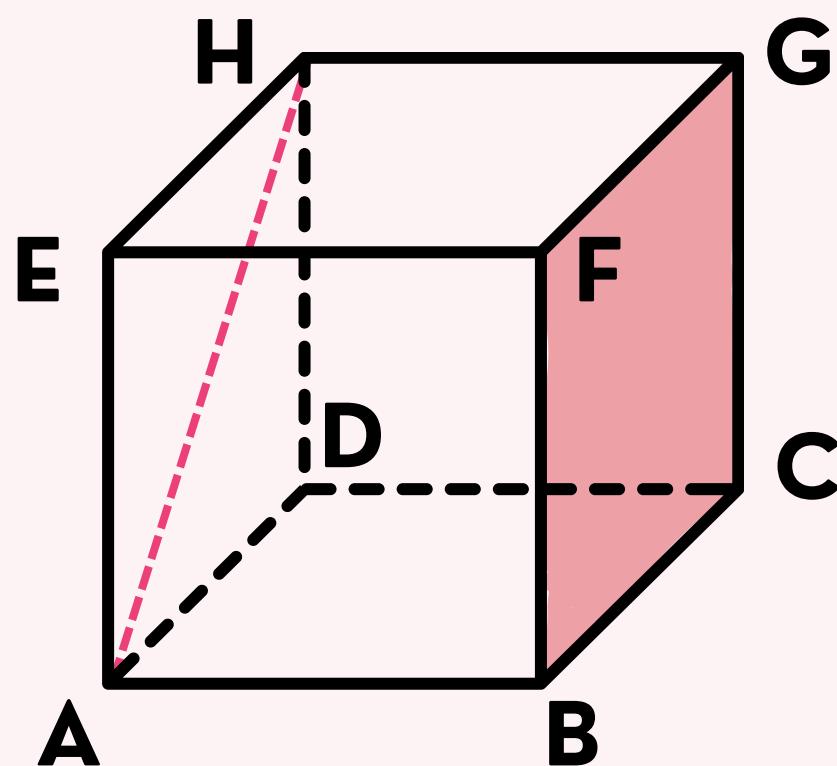
Bersilangan

Berhimpit



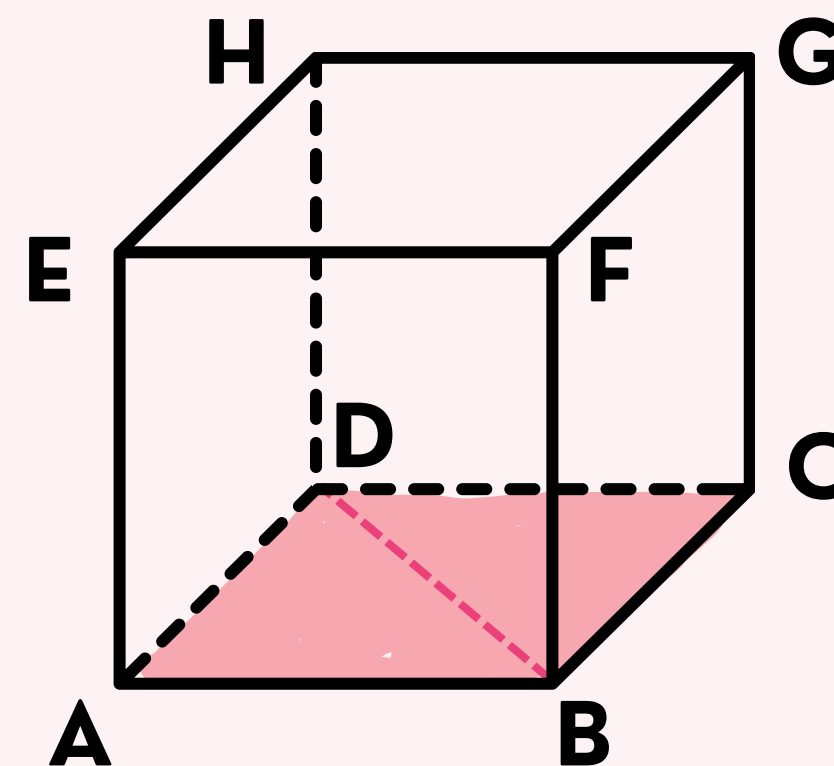
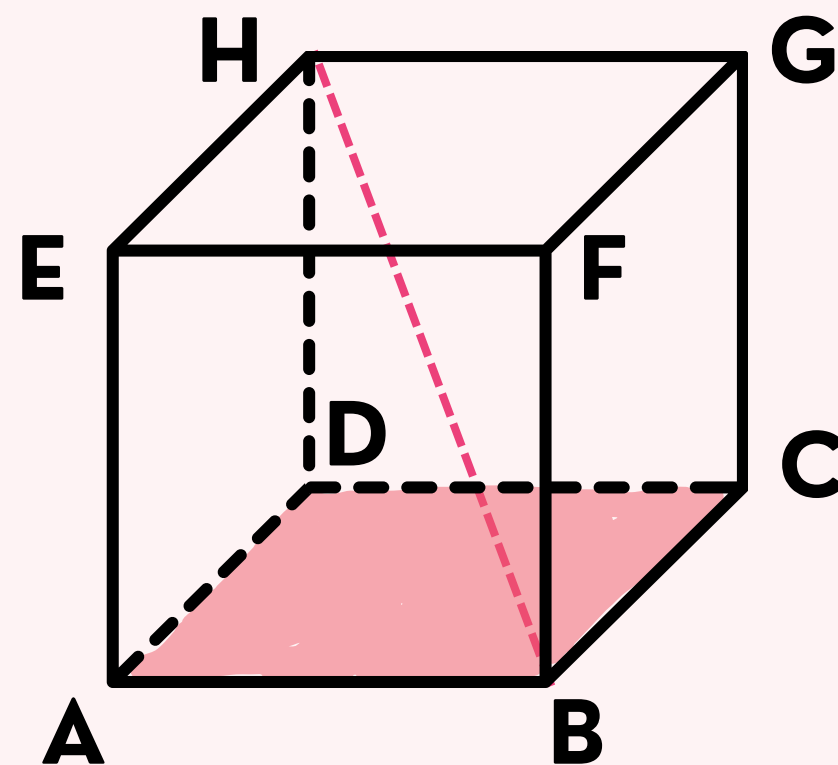


Hubungan Garis & Bidang

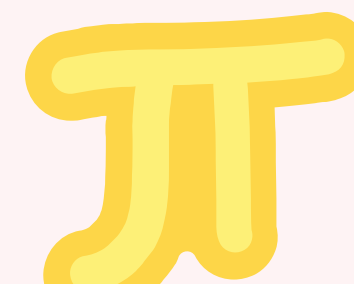
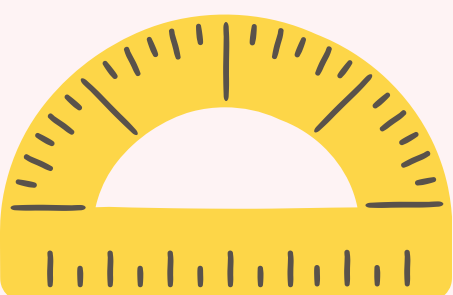


Sejajar

Menembus

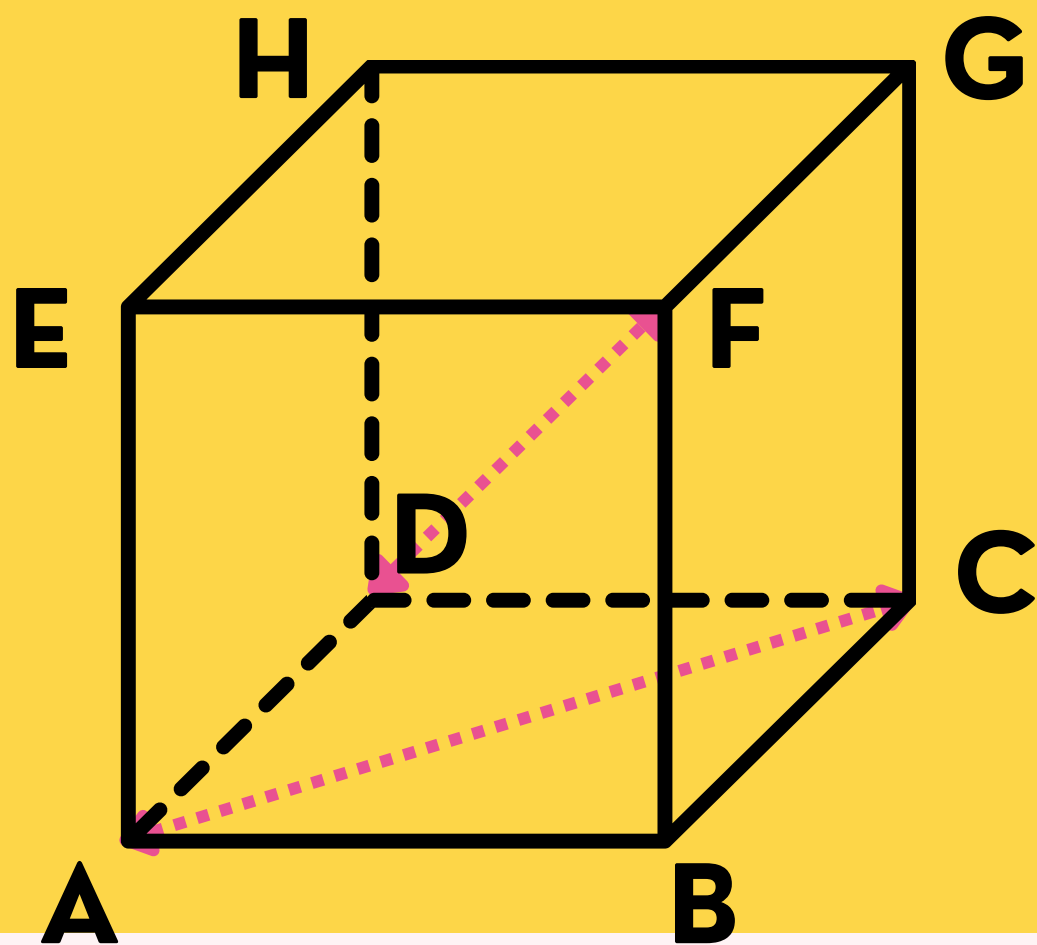


Berhimpit



Ketegaklurusan dua garis

Buktikan Garis DF Dan AC tegak lurus

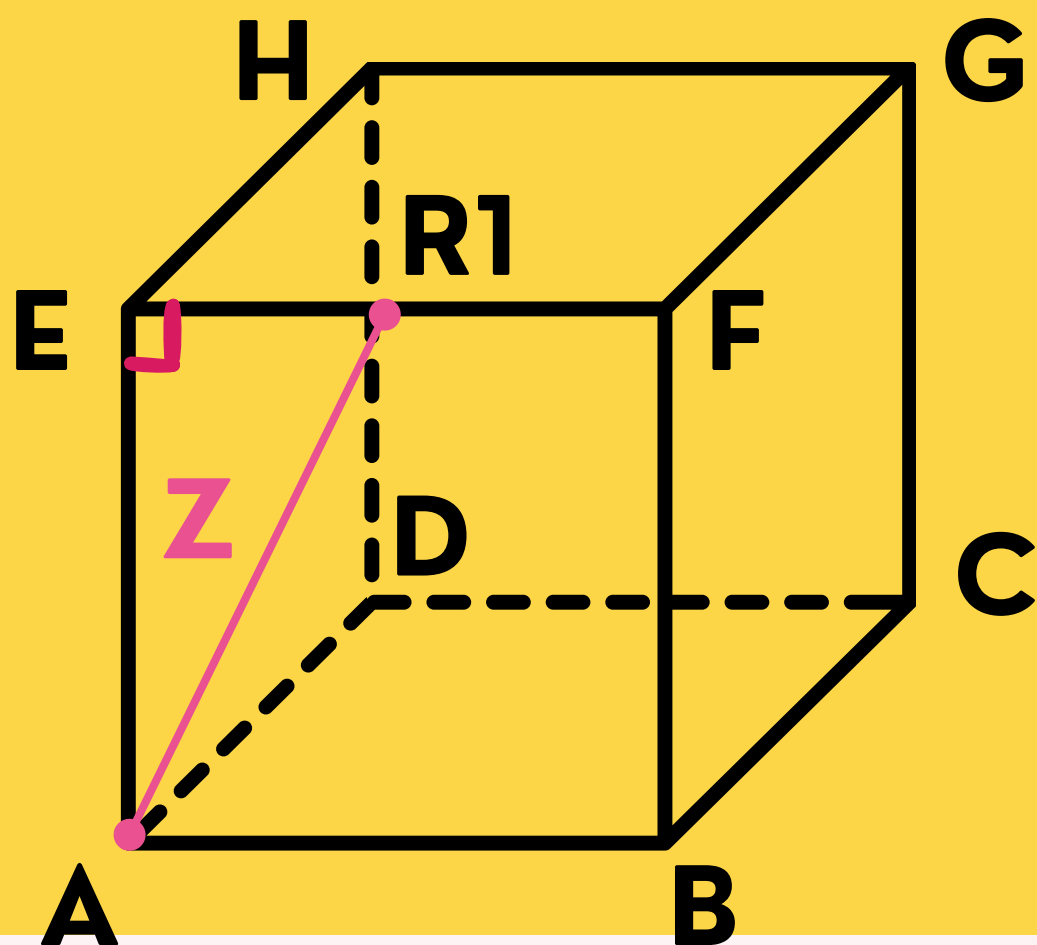


$$\left. \begin{array}{l} BF \perp BC \\ BF \perp AB \end{array} \right\} \begin{array}{l} BF \perp ABCD \\ BF \perp AC \end{array}$$

$$\left. \begin{array}{l} AC \perp BF \\ AC \perp BD \end{array} \right\} \begin{array}{l} AC \perp BDHF \\ AC \perp DF \end{array}$$

Jarak Titik ke Titik

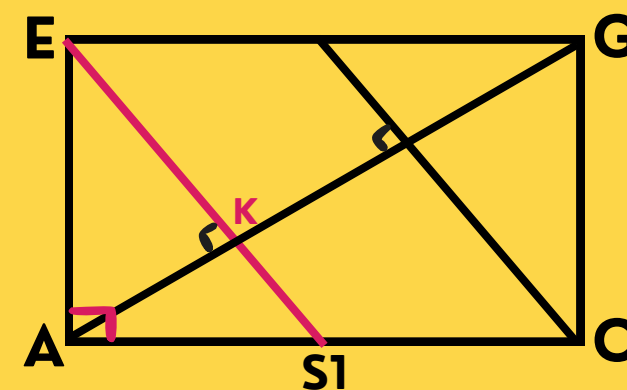
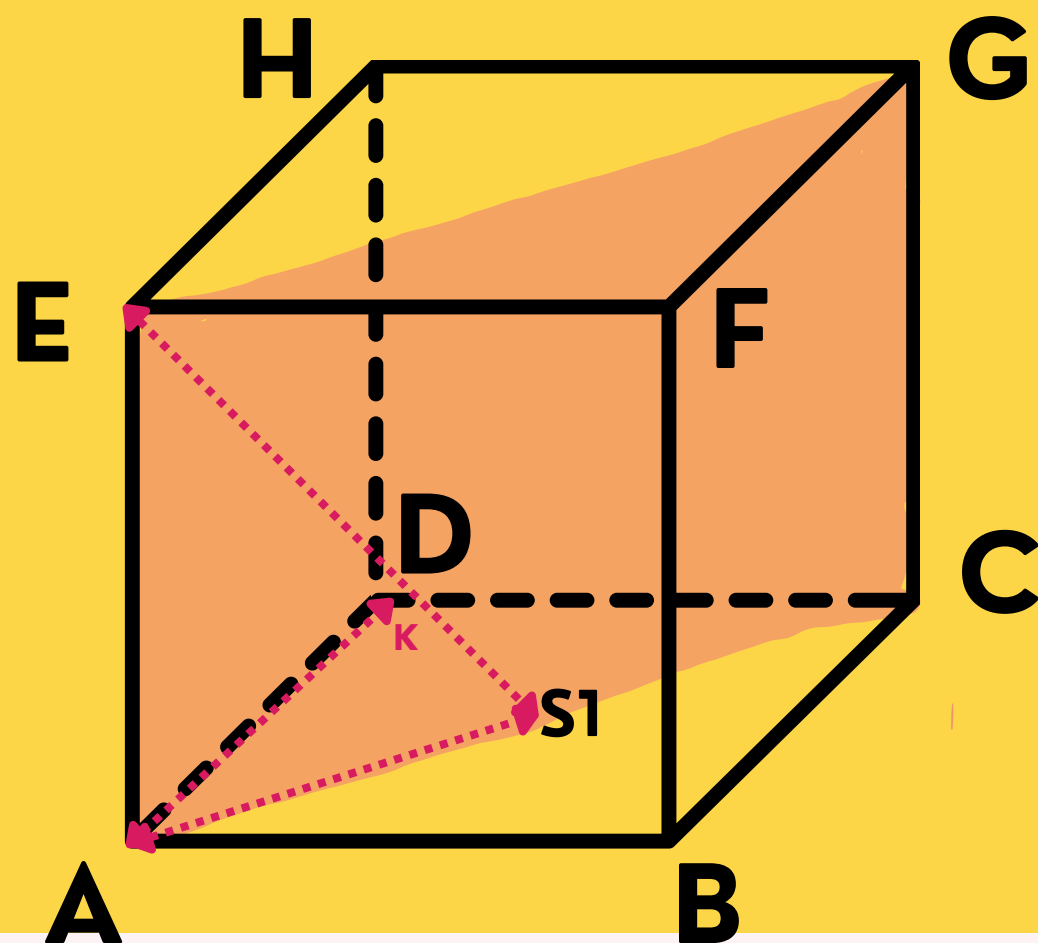
Hitung jarak A ke R1



$$\begin{aligned} AR_1 = Z &= \sqrt{AE^2 + ER_1^2} \\ &= \sqrt{a^2 + \left(\frac{1}{2}a\right)^2} \\ &= \sqrt{a^2 + \frac{1}{4}a^2} \\ &= \sqrt{\frac{5}{4}a^2} = \frac{1}{2}\sqrt{5}a \end{aligned}$$

Jarak Titik ke Garis

Hitung jarak A ke ES1



Luas = Luas

$$\frac{1}{2} \cdot a \cdot t = \frac{1}{2} \cdot a \cdot t$$

$$\frac{1}{2} \cdot AS1 \cdot AE = \frac{1}{2} \cdot ES1 \cdot AK$$

$$\frac{1}{2} \cdot \sqrt{2}a \cdot a = \frac{1}{2} \cdot \sqrt{6}a \cdot AK$$

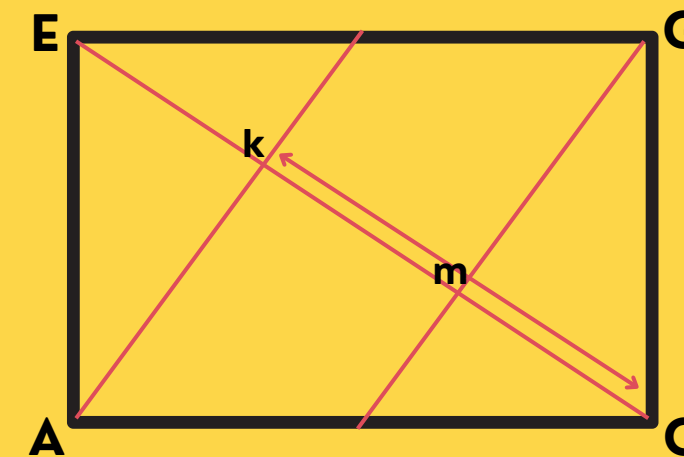
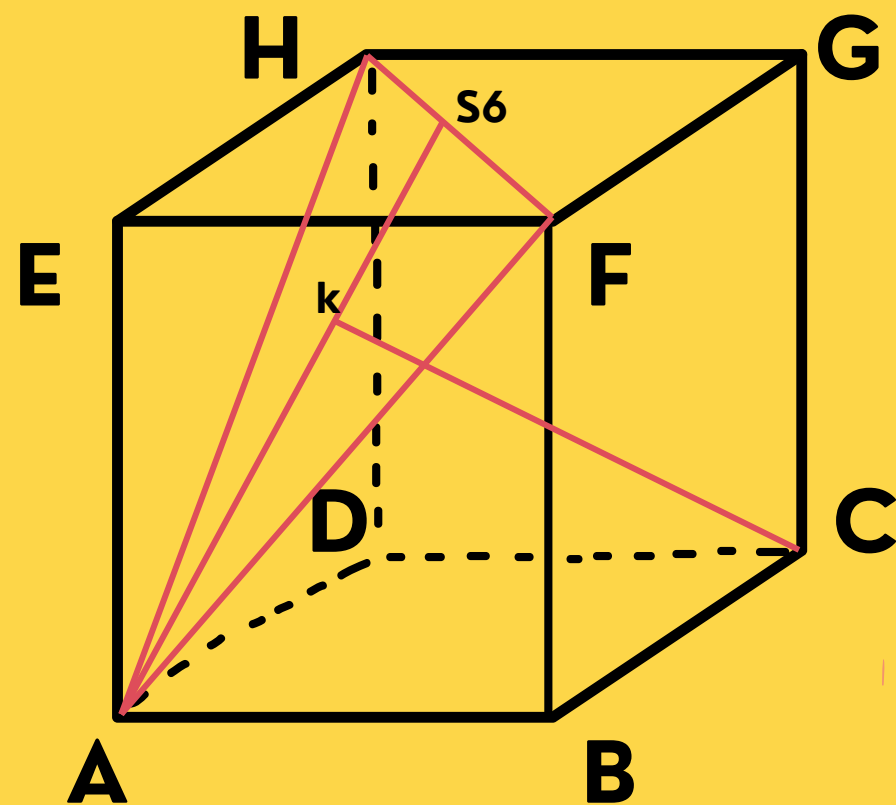
$$\sqrt{\frac{2}{6}} = AK$$

$$AK = \sqrt{\frac{1}{3}} \times \sqrt{\frac{1}{3}}$$

$$AK = \frac{1}{3} \sqrt{3}$$

Jarak Titik ke Bidang

Hitung jarak A ke ES1

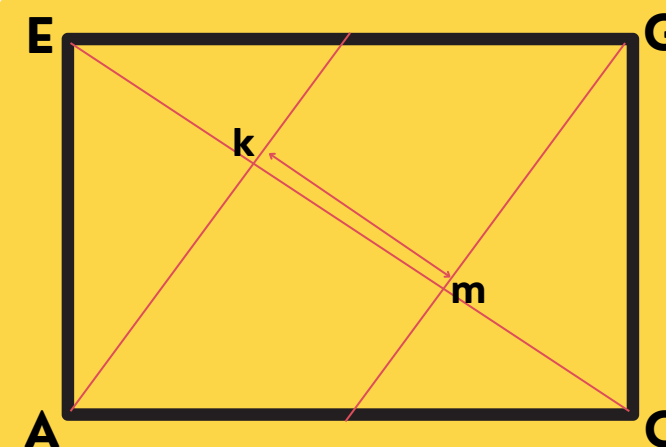
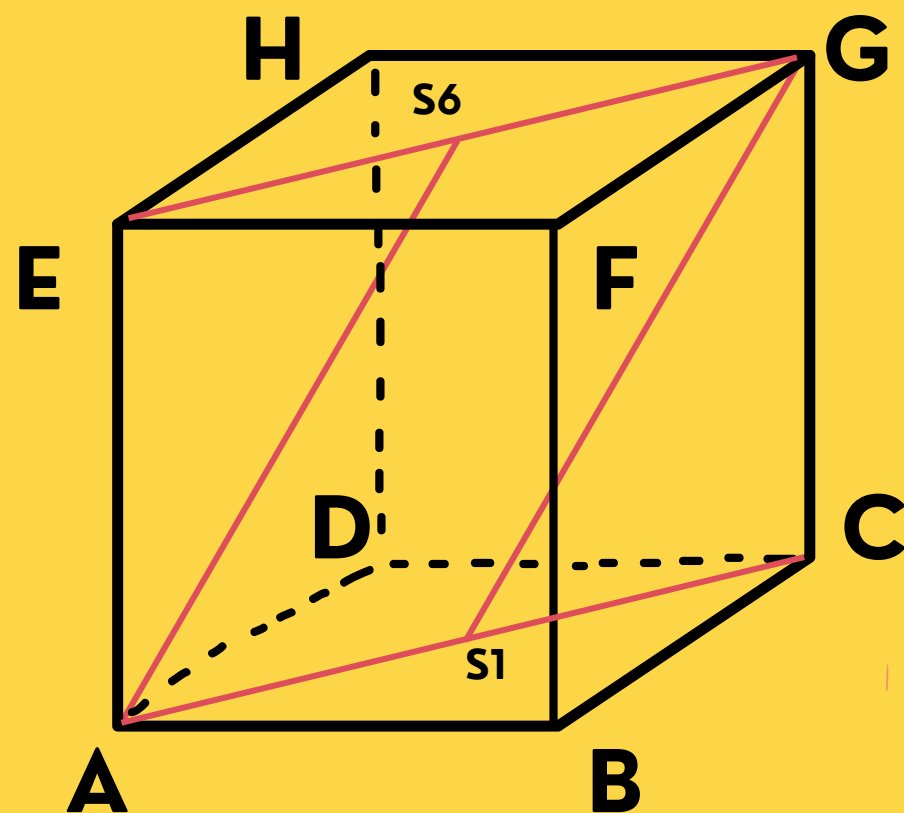


karena dari C ke E
dibagi menjadi 3,
maka jarak dari C ke
k adalah $\frac{2}{3}$ dari C
ke E

Jarak diagonal ruang C ke E adalah $\sqrt{3}a$;
maka $\frac{2}{3}$ dari C ke E
bisa dikatakan dengan $\frac{2}{3} \times \sqrt{3}a$
 $= \frac{2}{3}\sqrt{3}a$

Jarak Titik ke Bidang

Hitung jarak A ke ES1

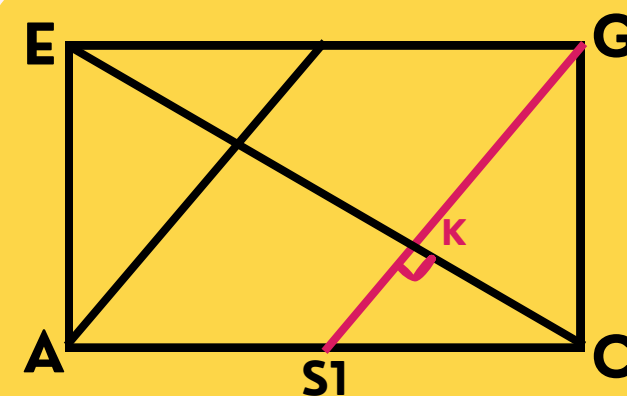
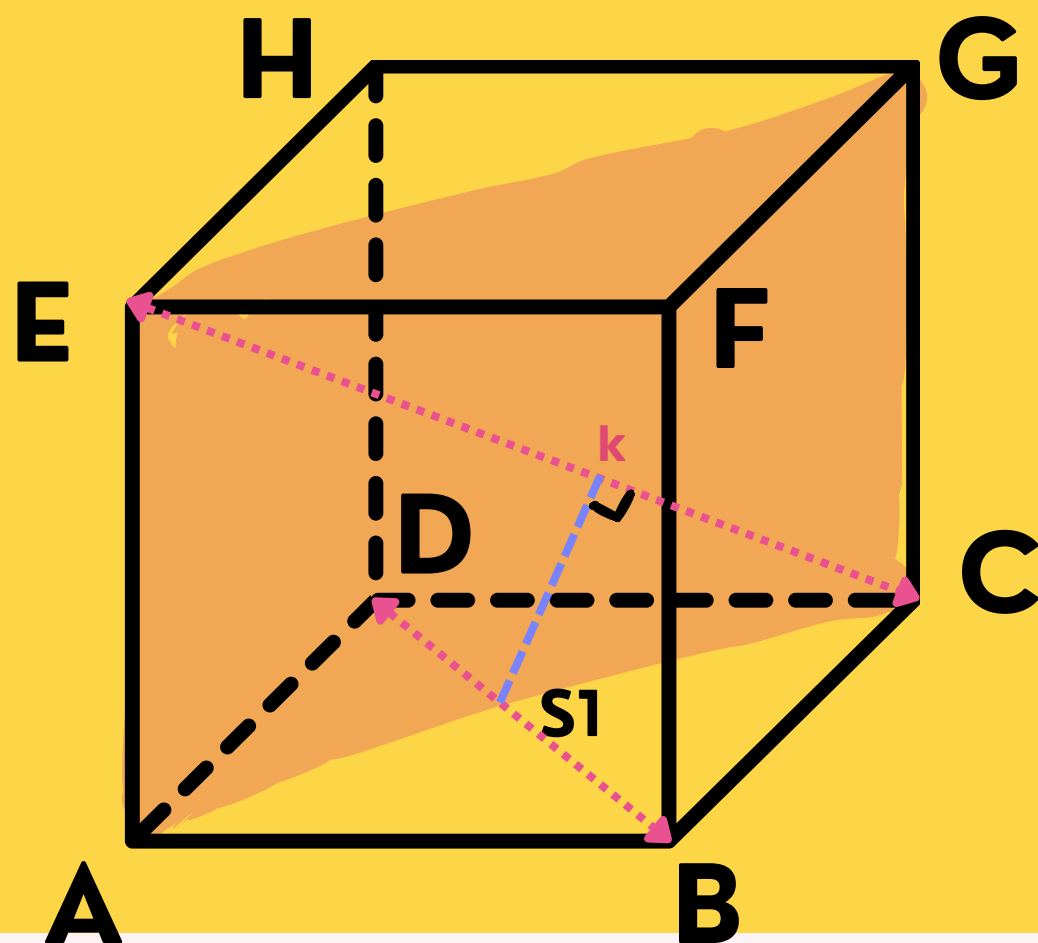


karena dari C ke E dibagi menjadi 3, maka jarak dari k ke m adalah $\frac{1}{3}$ dari C ke E

Jarak diagonal ruang C ke E adalah $\sqrt{3}a$;
maka $\frac{1}{3}$ dari C ke E
bisa dikatakan dengan $\frac{1}{3} \times \sqrt{3}a$
 $= \frac{1}{3}\sqrt{3}a$

Jarak 2 Garis Bersilangan

Hitung jarak EC ke BD



$$\text{jarak} = S_1 K$$

$$S_1 K = \frac{1}{3} GS_1$$

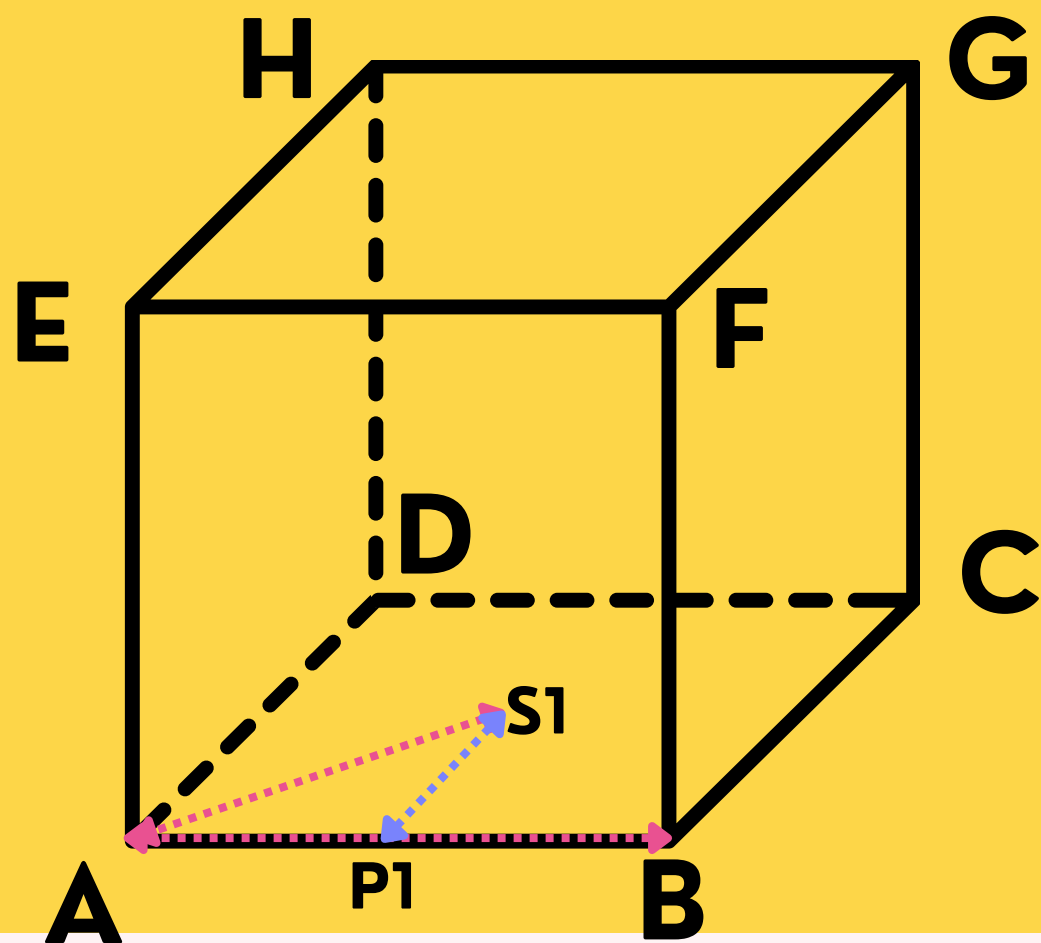
$$= \frac{1}{3} \sqrt{a^2 + \left(\frac{1}{2}\sqrt{2}a\right)^2}$$

$$= \frac{1}{3} \sqrt{\frac{6}{4} a^2}$$

$$S_1 K = \frac{1}{6} \sqrt{6} a$$

Proyeksi Garis ke Garis

Proyeksi AS_1 pada AB



Proyeksi A pd AB adl A

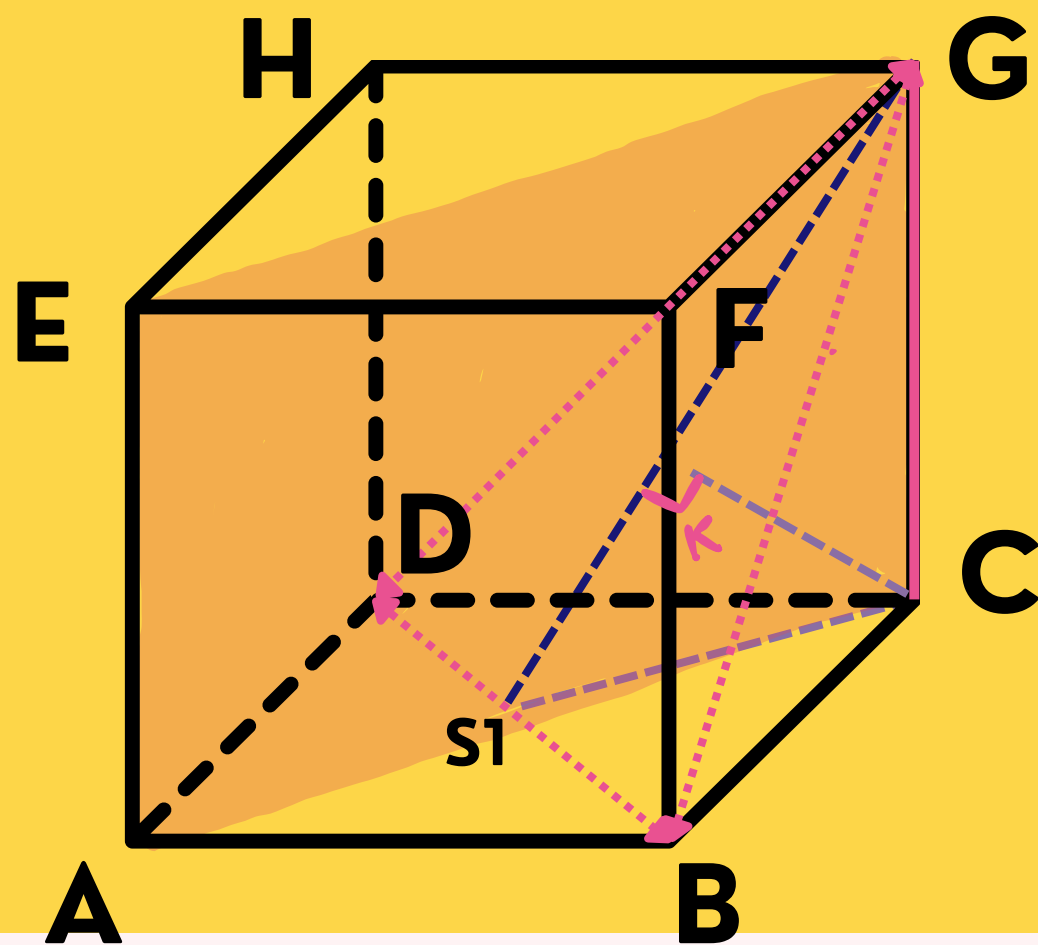
Proyeksi S_1 pd AB adl P_1

Panjang = $AP_1 = \frac{1}{2} (AB)$

$$= \frac{1}{2} a$$

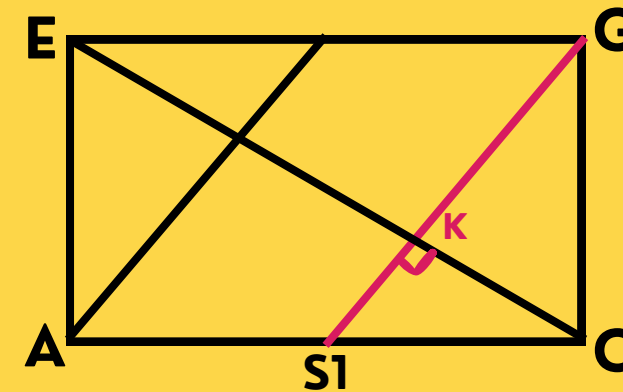
Proyeksi Garis ke Bidang

Proyeksi CG ke BDG



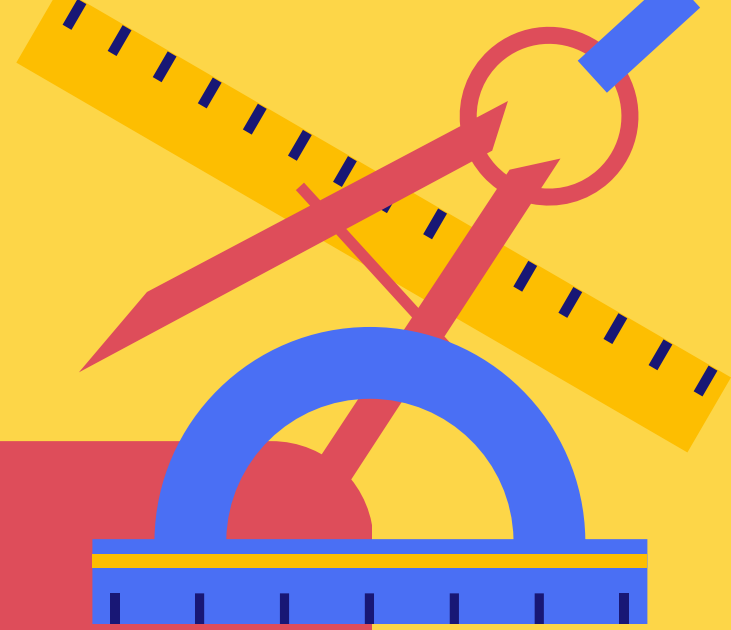
Proyeksi C pd BDG adl K

Proyeksi G pd BDG adl G



Panjang = KG

$$\begin{aligned}
 KG &= \frac{2}{3} GS_1 \\
 &= \frac{2}{3} \sqrt{a^2 + \left(\frac{1}{2}a\right)^2} \\
 &= \frac{2}{3} \times \frac{1}{2}\sqrt{6} a \\
 KG &= \frac{1}{3}\sqrt{6} a
 \end{aligned}$$



Terima Kasih

Disusun oleh Kelompok 2

