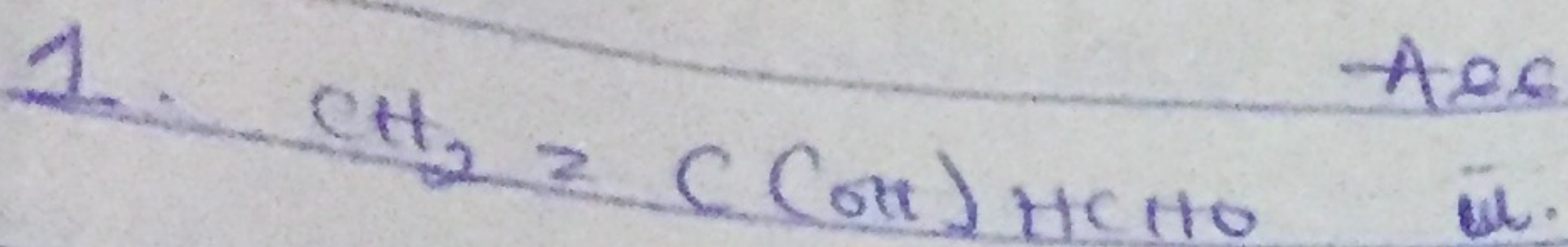


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molecules	functional group
$\text{CH}_2 = \text{C}(\text{OH})\text{CHO}$	- Aldehyde (-CHO) - Hydroxyl group (-OH)
$\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$	- Carbonyl group (-CO) - Amine (-NH ₂)
$\text{CH}_3\text{C}(\text{OH})(\text{CH}_2\text{OH})\text{CHO}$	- Hydroxyl group (-OH) - Aldehyde (-CHO)

2. $[\alpha] = \frac{\alpha}{d}$

where $[\alpha]$ = specific optical rotation

α = observed rotation

c = concentration in g/ml

l = path length (in dm)

$\alpha = +1.0^\circ$

$l = 1.0 \text{ dm}$

$c = ?$

The concentration is always measured in g/ml.
the question we were already given the mass in g so
convert the volume of water (1000 cm^3) to ml.

1 litre = 1000 cm^3

1 ml = 1 cm^3

$$1 \text{ cm}^3 = 1 \text{ ml}$$

$$10 \text{ cm}^3 = ?$$

$$\Rightarrow \frac{10 \text{ cm}^3 \times 1 \text{ ml}}{1 \text{ cm}^3} = 10 \text{ ml} \Rightarrow C = 10 \text{ ml}$$

$$\therefore [\alpha] = \frac{\alpha}{d} = \frac{1.0}{10 \times 10}$$

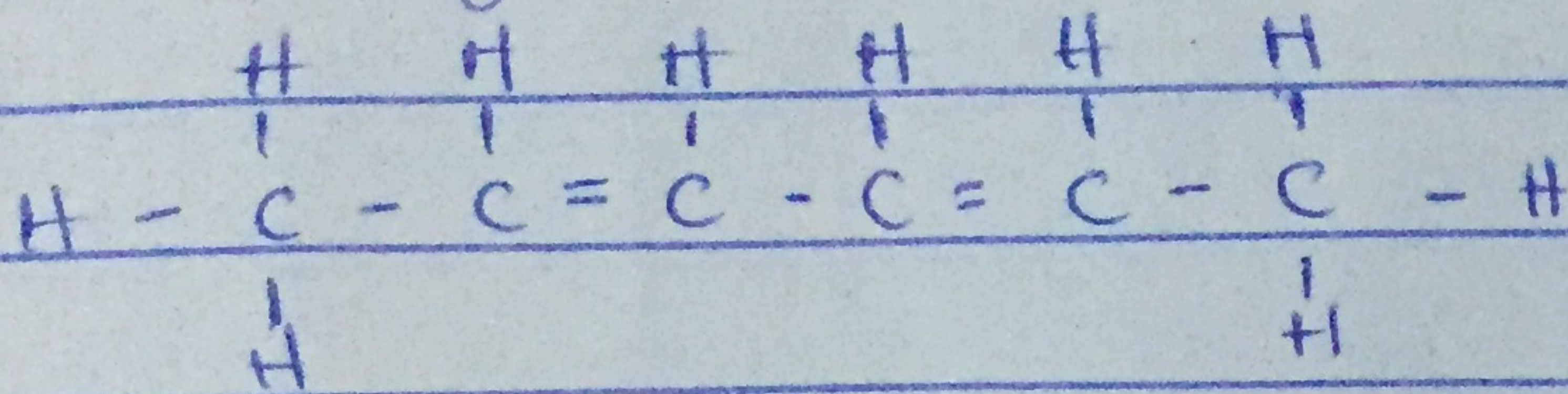
$$[\alpha] = \frac{1}{10}$$

$$[\alpha] = 0.1^\circ$$

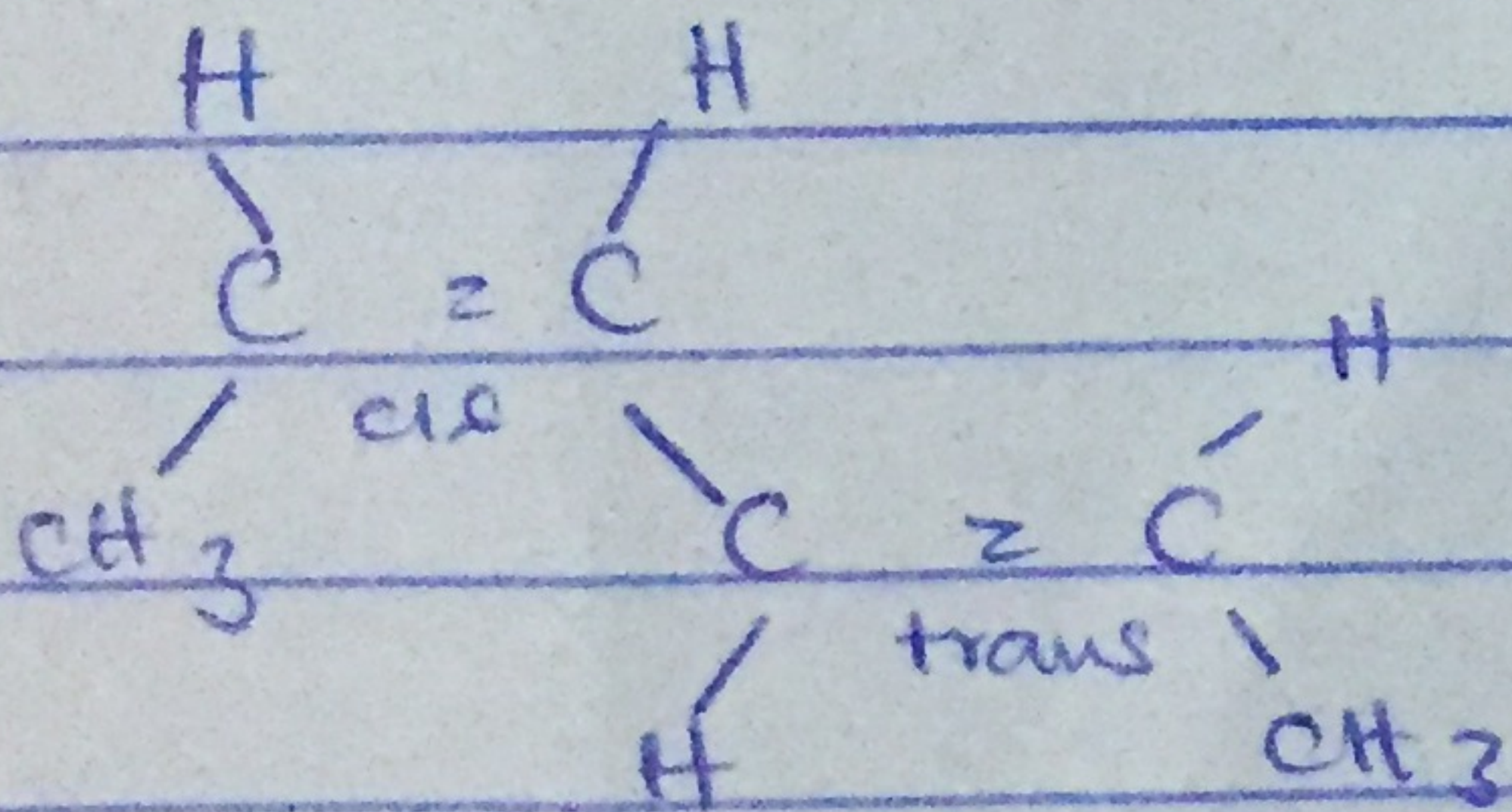
The specific rotation of (2R,3R) tartaric acid is 0.1°

3. Hexa-2,4-diene $[\text{CH}_3\text{CH}=\text{CHCH}=\text{CHCH}_3]$
ane.

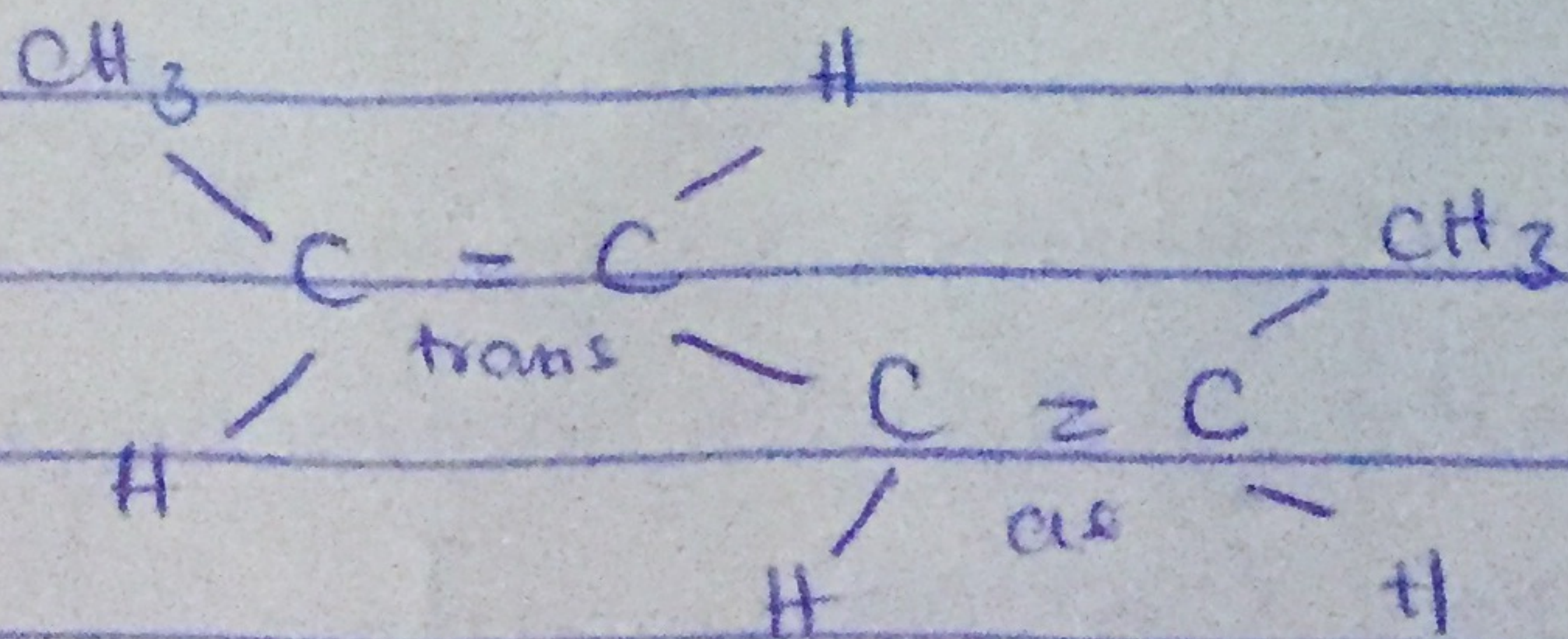
Possible geometric isomers.



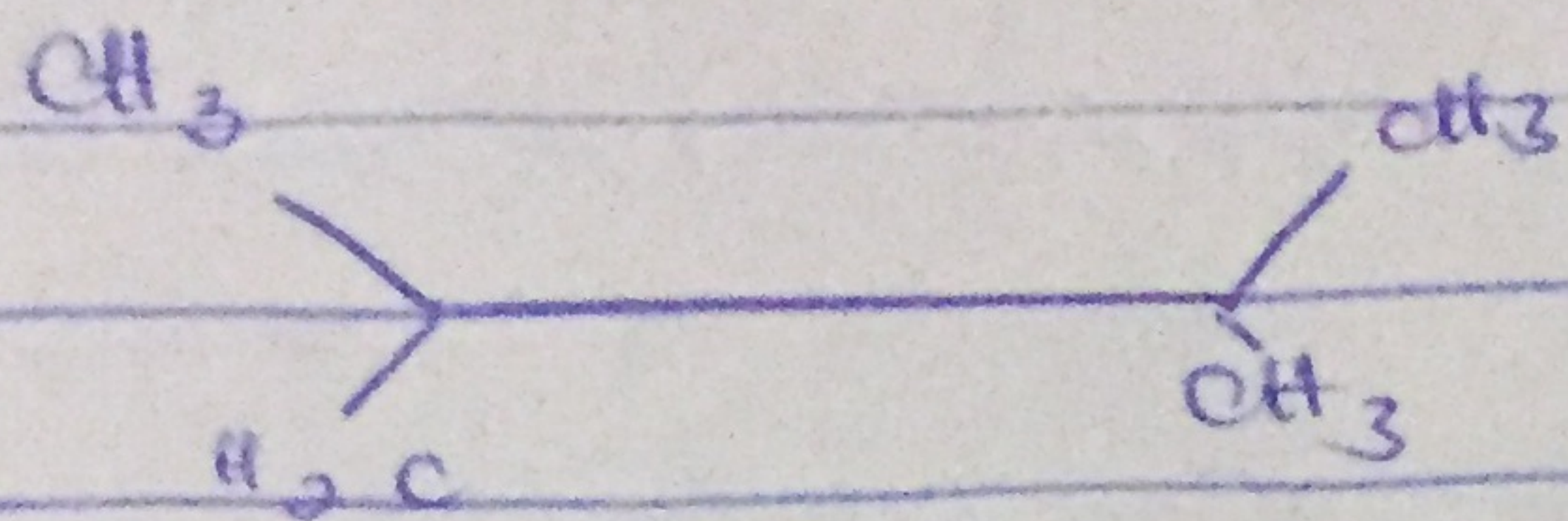
Hexa-2,4-diene



cis-1, trans-4-dimethyl but-2-ene



trans-1, cis-4-dimethyl but-2-ene

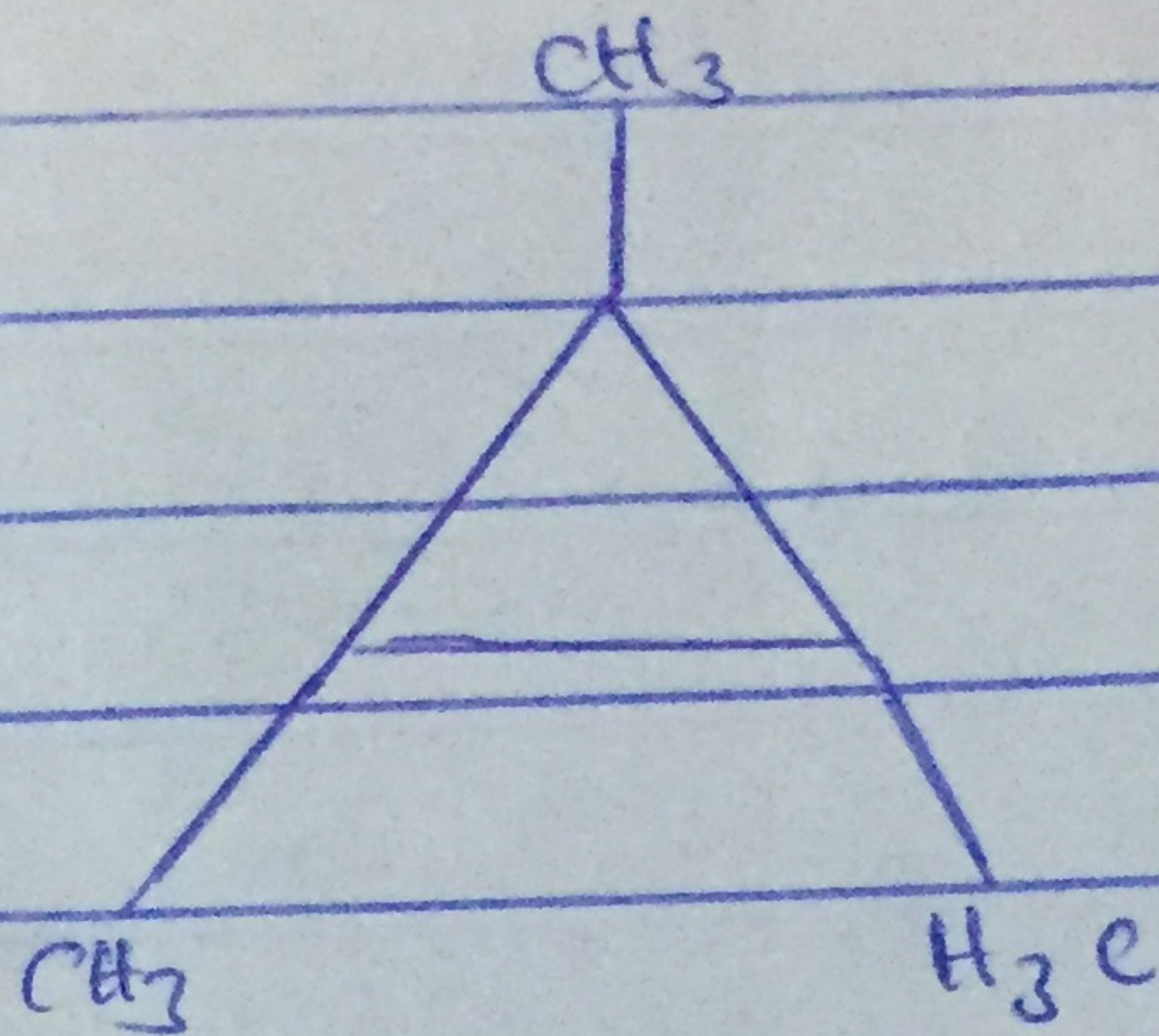


2,3 - Dimethyl but - 2 - ene

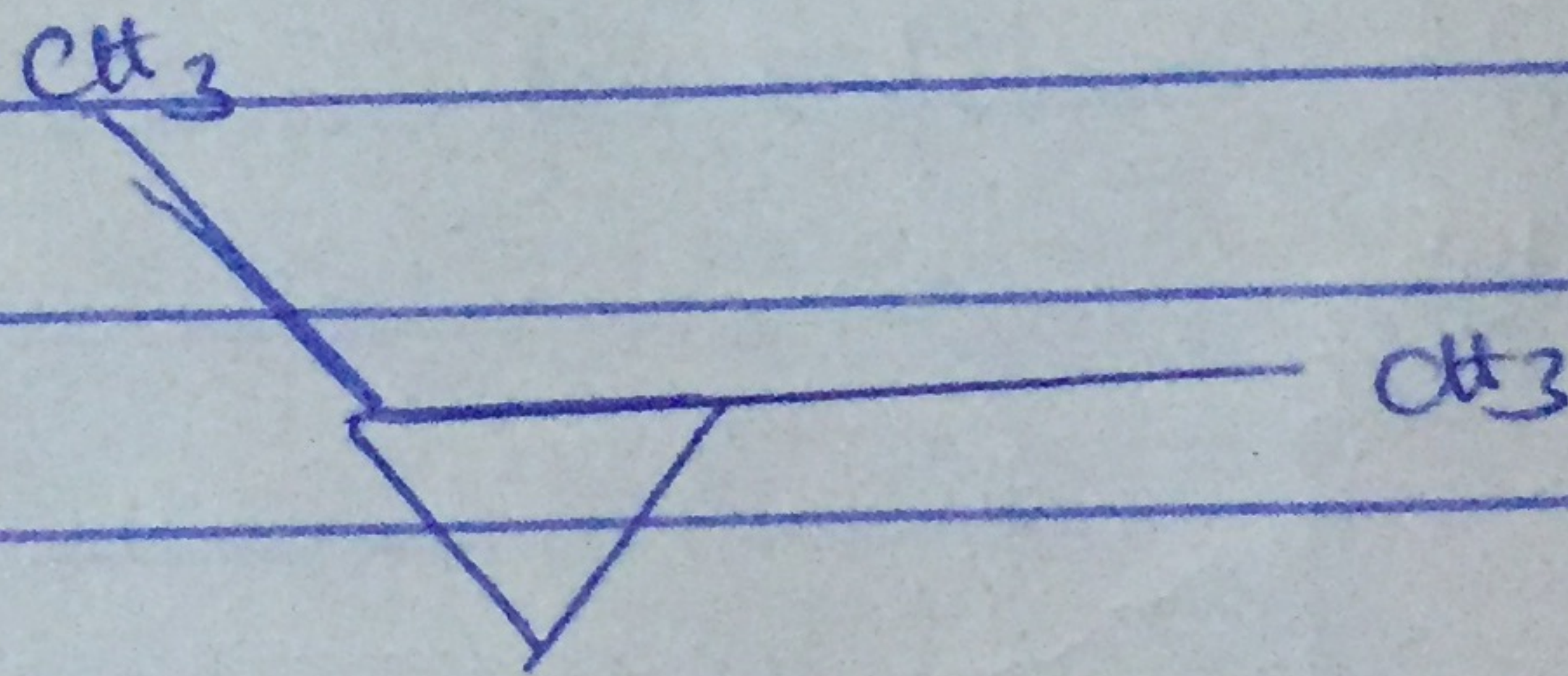
ane.

Possible geometric isomers.

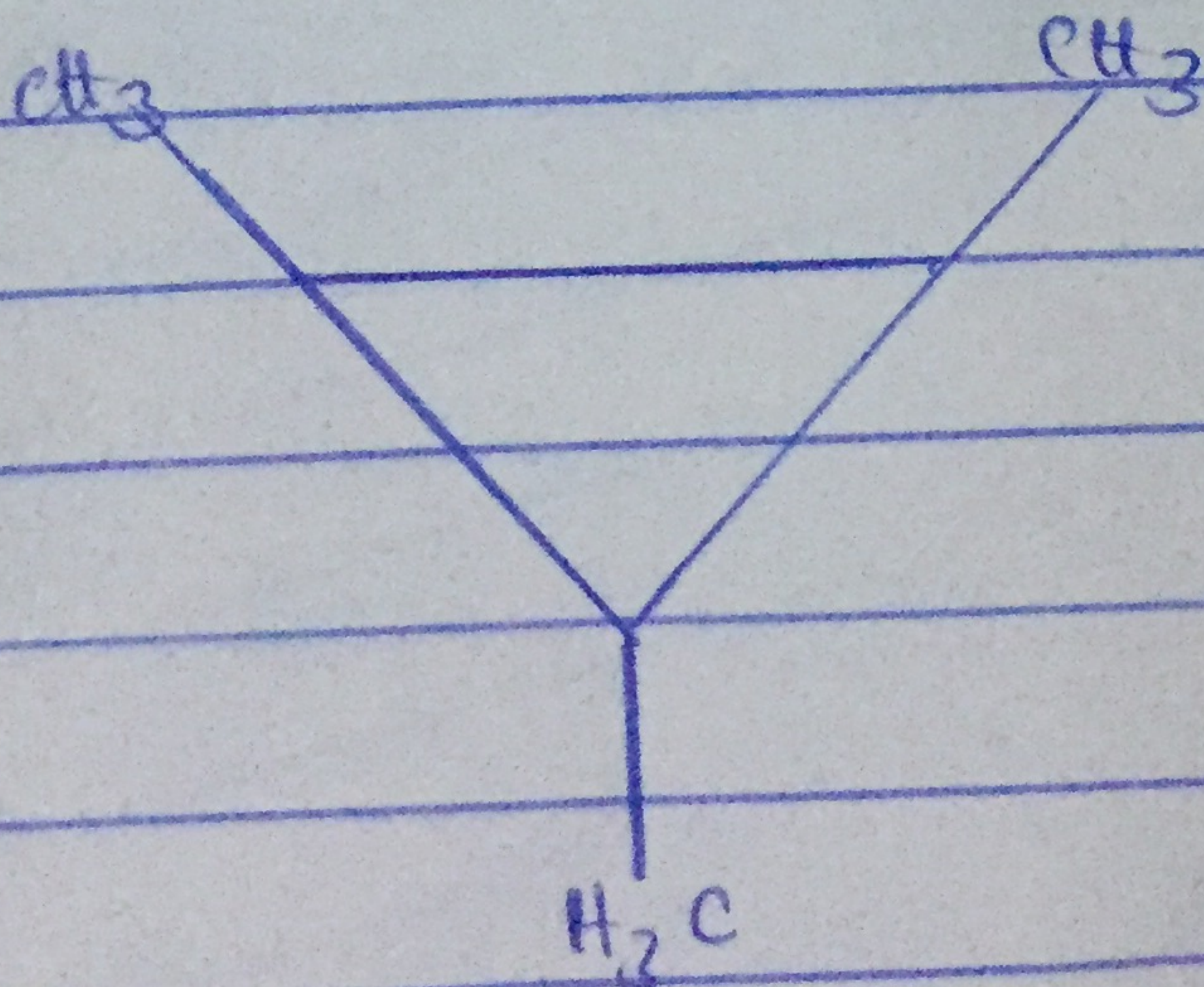
I 1 - cis - 2 - trans - 3 - trimethyl cyclopropane.



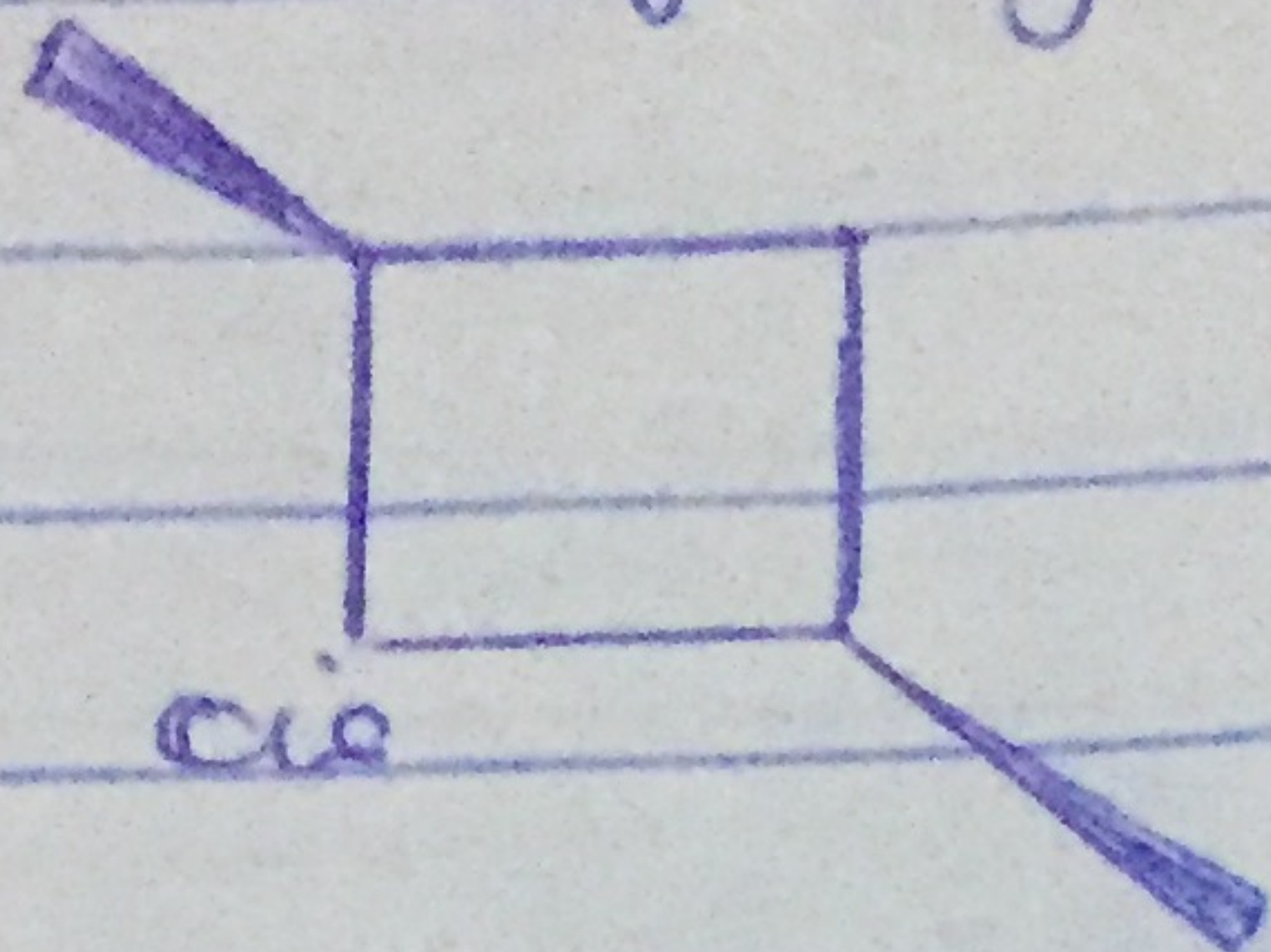
1 - methyl - trans - 2 - ethyl , cyclopropane



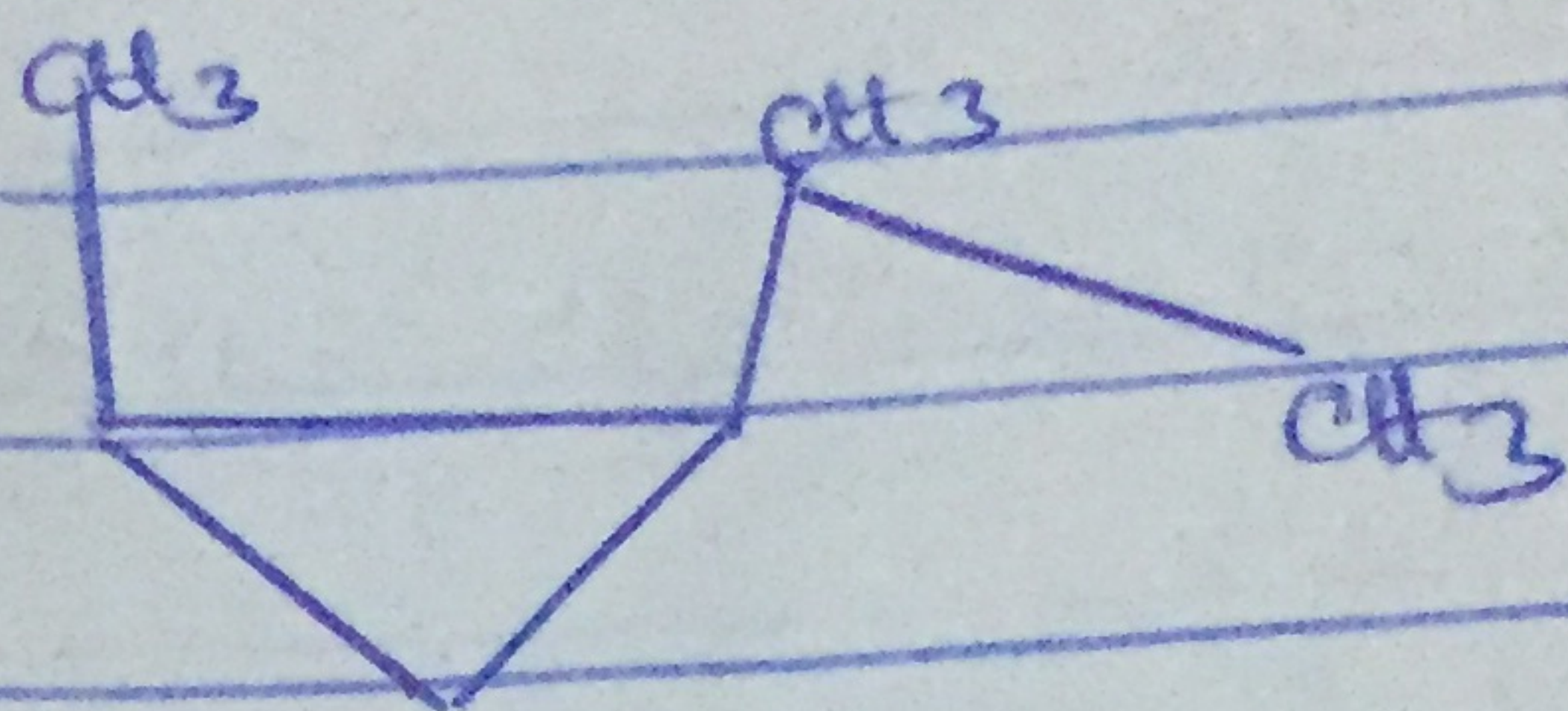
cis - 1, 2, 3 - trimethyl cyclopropane.



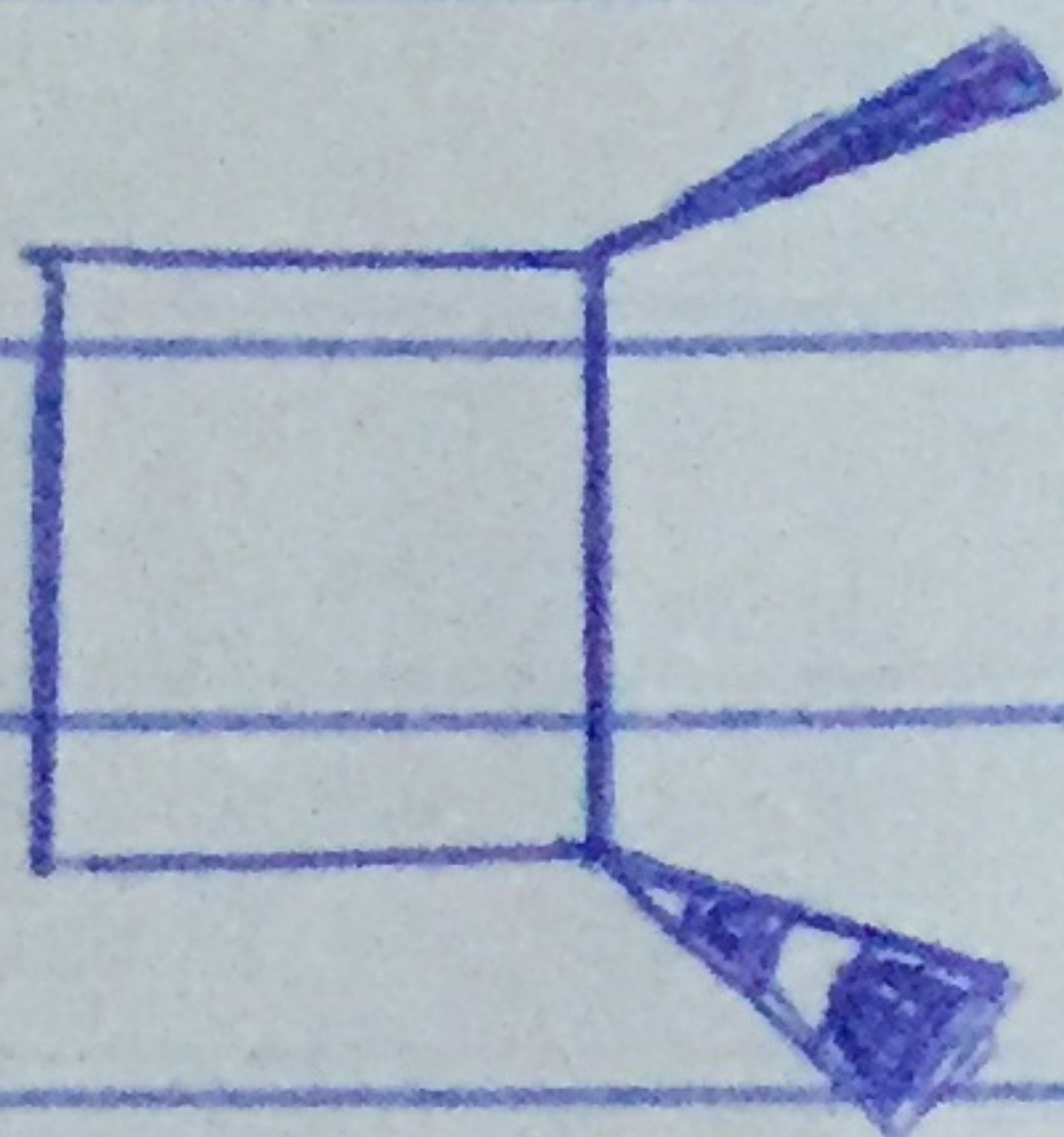
cis-1,3-dimethylcyclobutane.



cis-1-methyl-2-ethylcyclopropane.



Trans-1,2-dimethylcyclobutane.



Trans-1,3-dimethylcyclobutane.

