



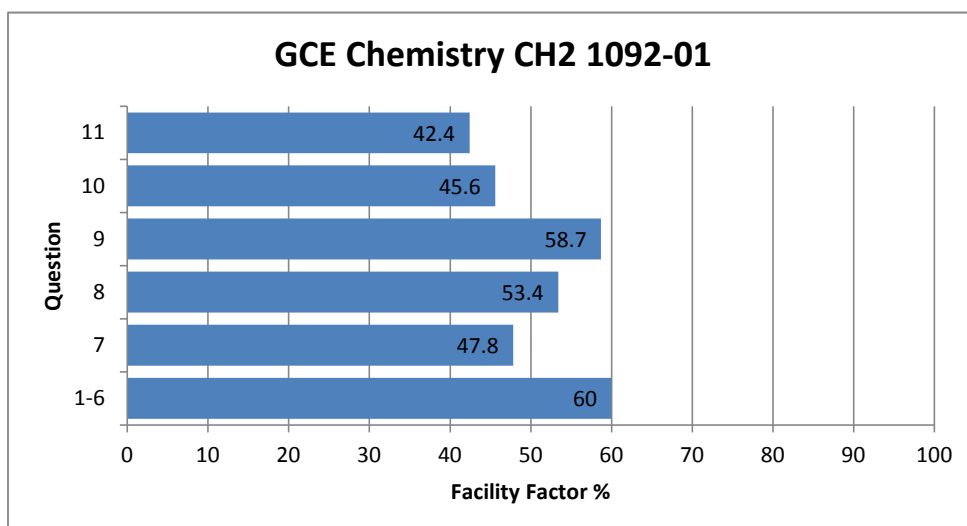


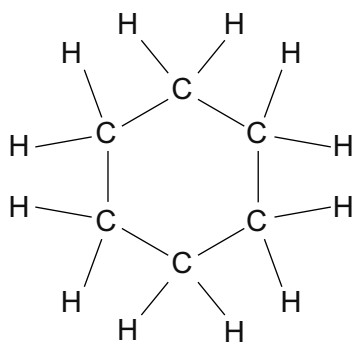
## GCE Chemistry CH2 1092-01

All Candidates' performance across questions

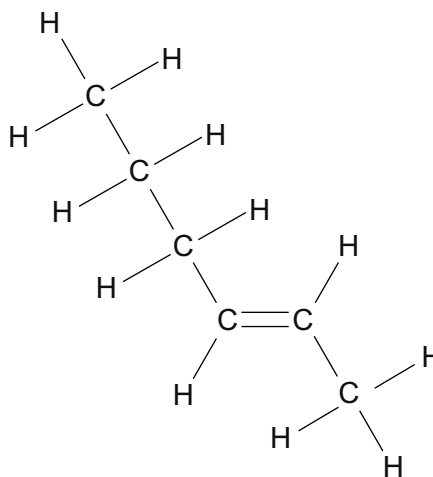
						
Question Title	N	Mean	SD	Max Mark	FF	Attempt %
1-6	3524	6	2.4	10	60	100
7	3522	7.6	4	16	47.8	99.9
8	3523	8.5	4.3	16	53.4	100
9	3524	8.8	3.4	15	58.7	100
10	3506	5	3.1	11	45.6	99.5
11	3504	5.1	2.7	12	42.4	99.4



5. Cyclohexane and hex-2-ene are isomers. Give a chemical test to distinguish between these two compounds. [2]



cyclohexane



hex-2-ene

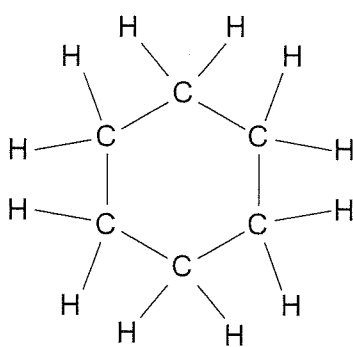
Reagent(s) .....

Observations .....

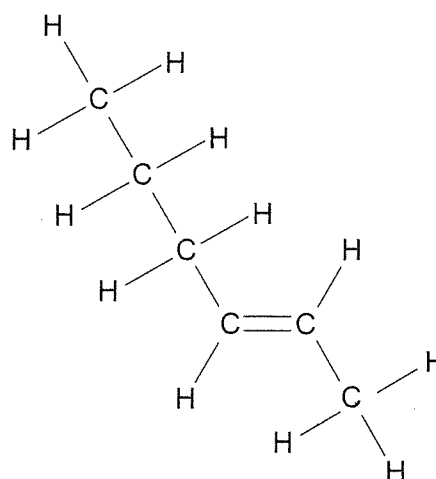
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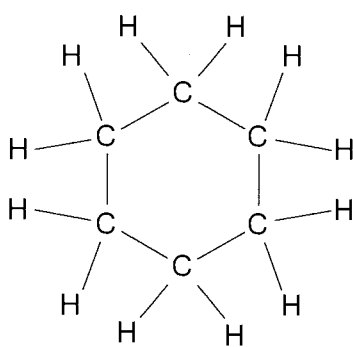
hex-2-ene

Reagent(s) bromine (aqueous)

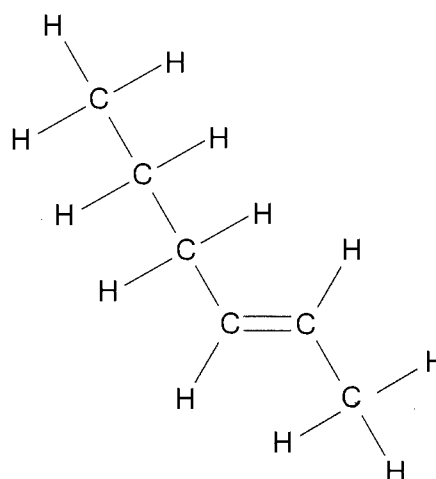
Observations will stay orange for cyclohexane, but  
will change from orange to colourless for hex-2-ene.



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cyclohexane



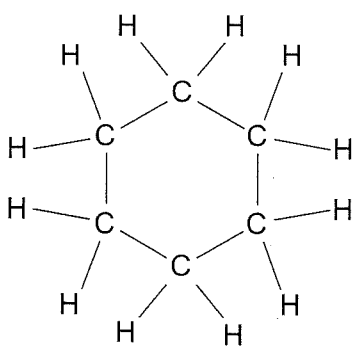
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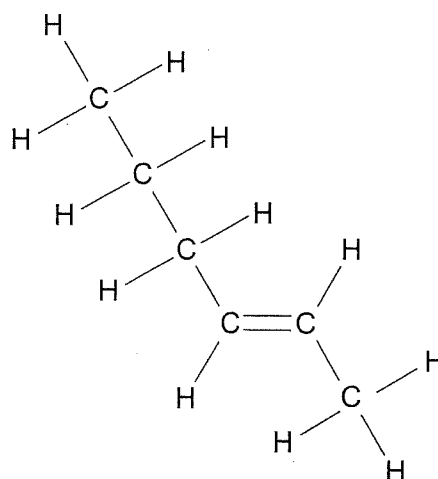
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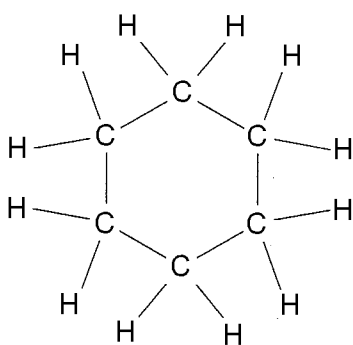
hex-2-ene

Reagent(s) Bromine (aq.)

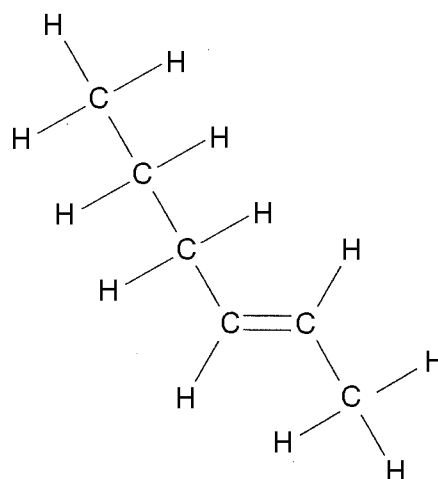
Observations Colour change from orange to colourless.



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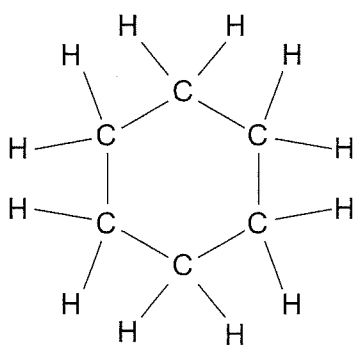
hex-2-ene

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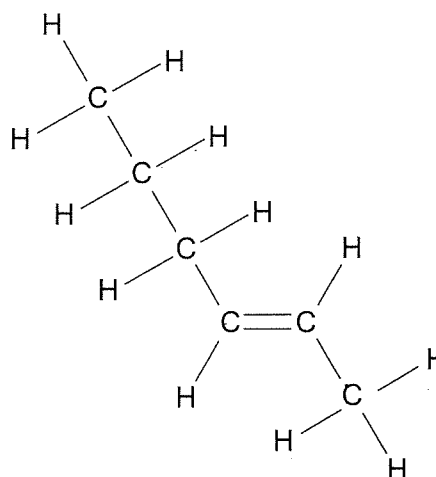
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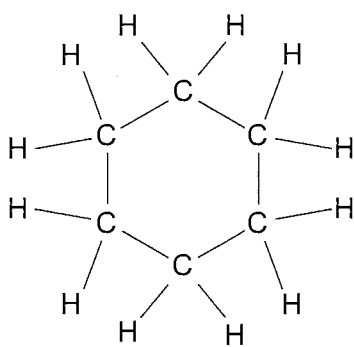
hex-2-ene

Reagent(s) Bromine water

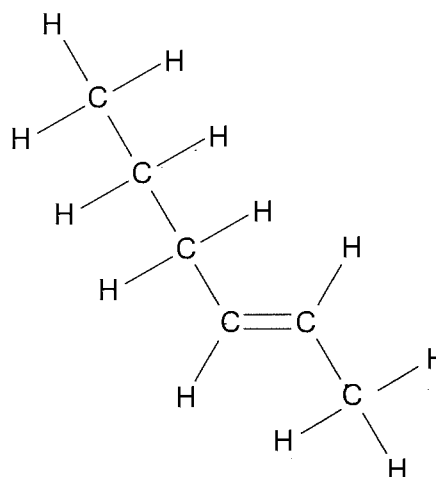
Observations colour change from orange to colourless  
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cyclohexane



hex-2-ene

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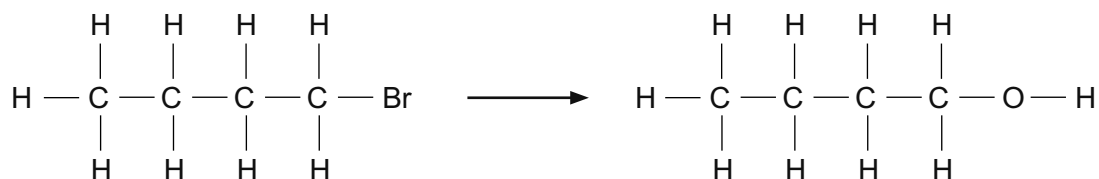
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..... pair of electrons in opposite spin with one electron coming from .....  
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10. (a) 1-bromobutane is a liquid that is insoluble in water. It can be converted to butan-1-ol in a one-step reaction.



- (i) Give the reagent(s) and condition(s) required for this reaction. [2]

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- (ii) Explain why butan-1-ol is soluble in water whilst 1-bromobutane is not. [3]

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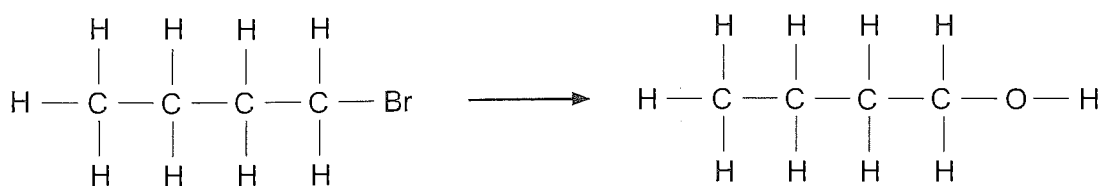
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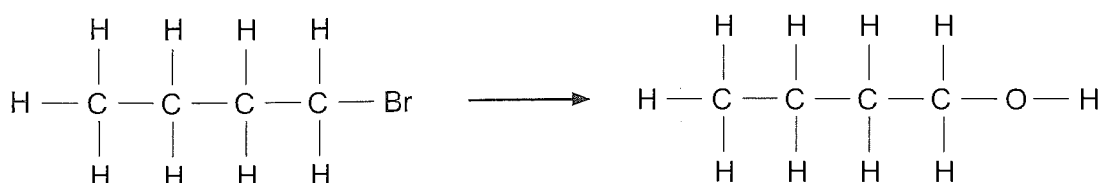


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Butan-1-ol can form hydrogen bonds with the polar water molecules due to its O-H group. 1-bromobutane cannot form hydrogen bonds and so the hydrophobic hydrocarbon chain doesn't dissolve as it can only produce Van der Waals forces which are not strong enough to overcome water's ability to hydrogen bond to itself.



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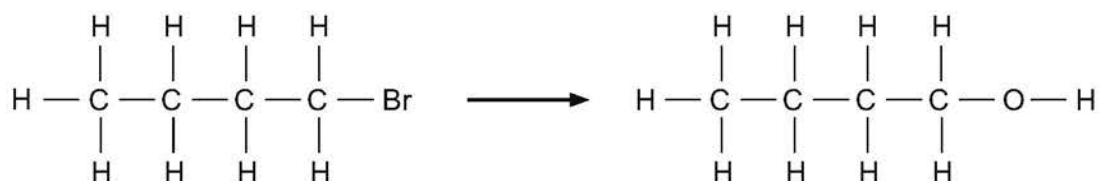


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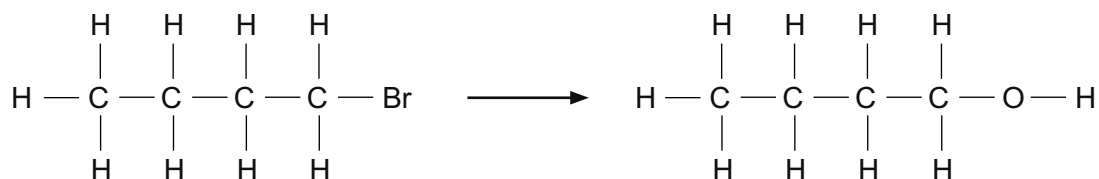
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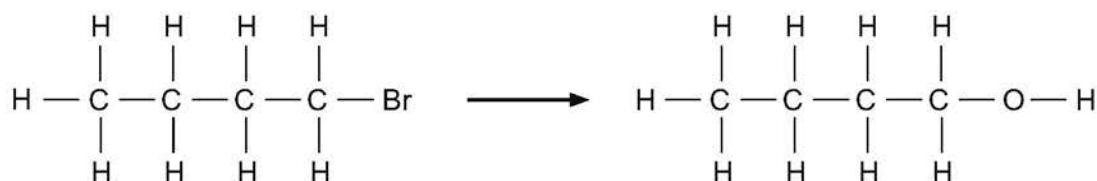
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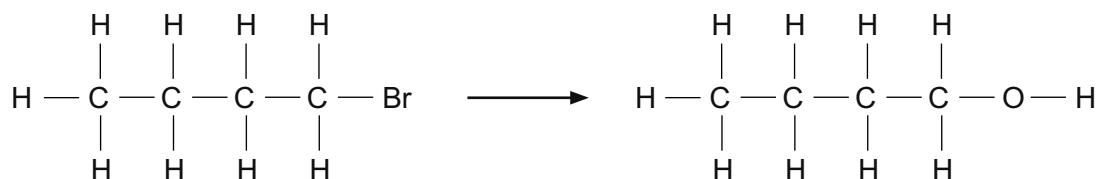
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Butan-1-ol has the O-H (hydroxyl group) this means that it can form hydrogen bonds with the polar water molecules and therefore dissolve.

1-bromobutane cannot form hydrogen bonds with water as it does not contain hydrogen bonded to another highly electronegative atom. It has van der Waals forces and is insoluble in water.



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11. (a) Propene reacts with hydrogen bromide to give 2-bromopropane.

(i) Draw the mechanism for this reaction.

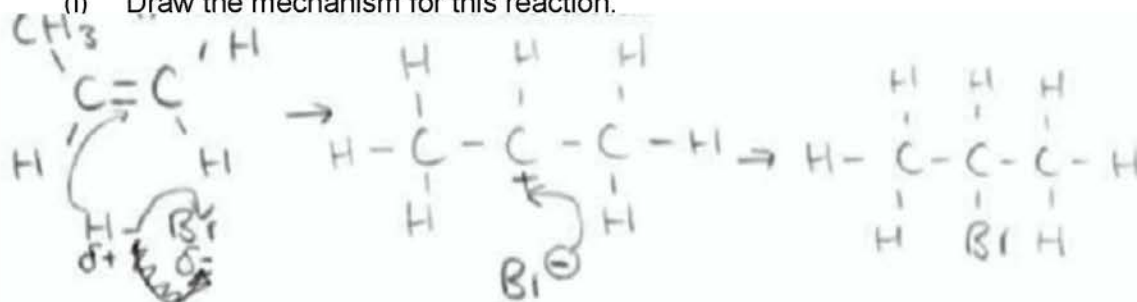
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(ii) Explain why the product of this reaction is mainly 2-bromopropane rather than 1-bromopropane. [2]

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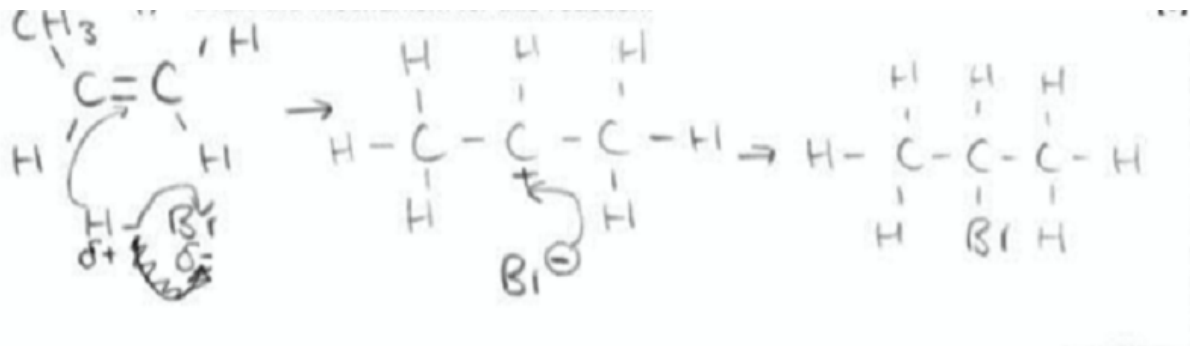




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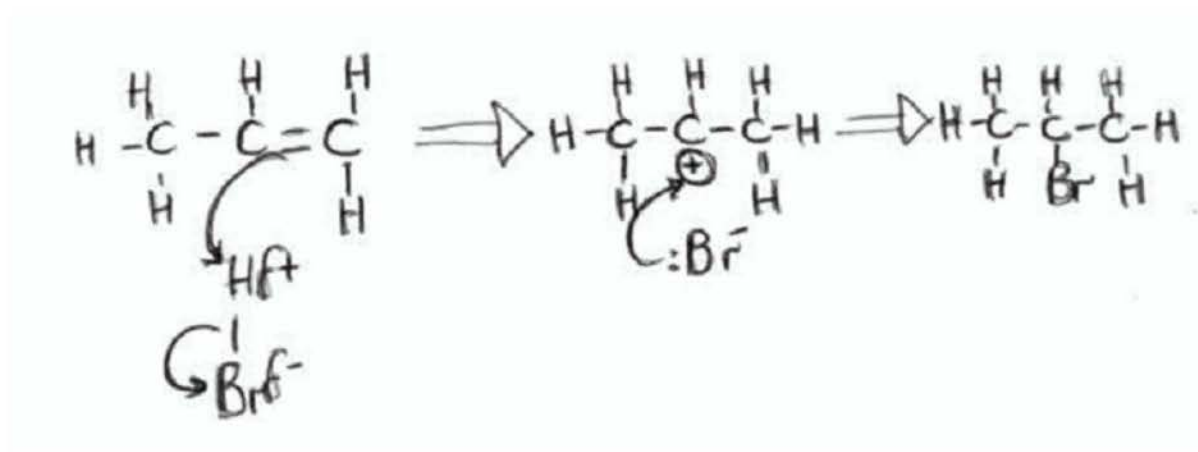
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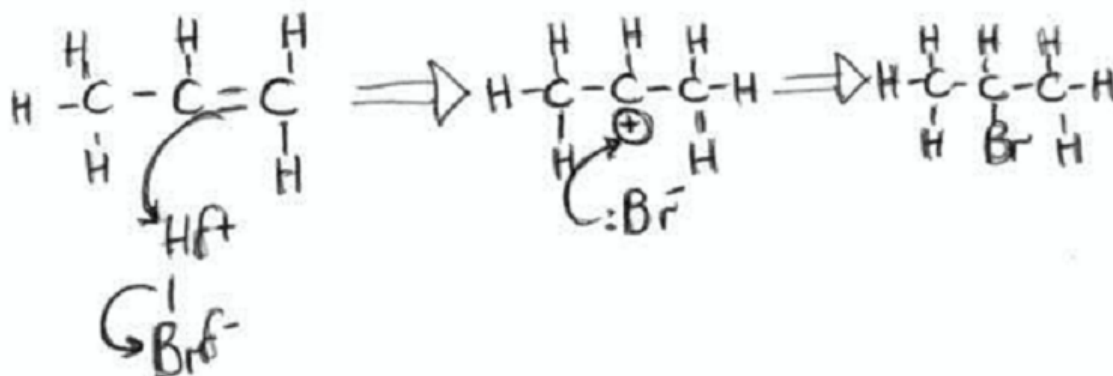
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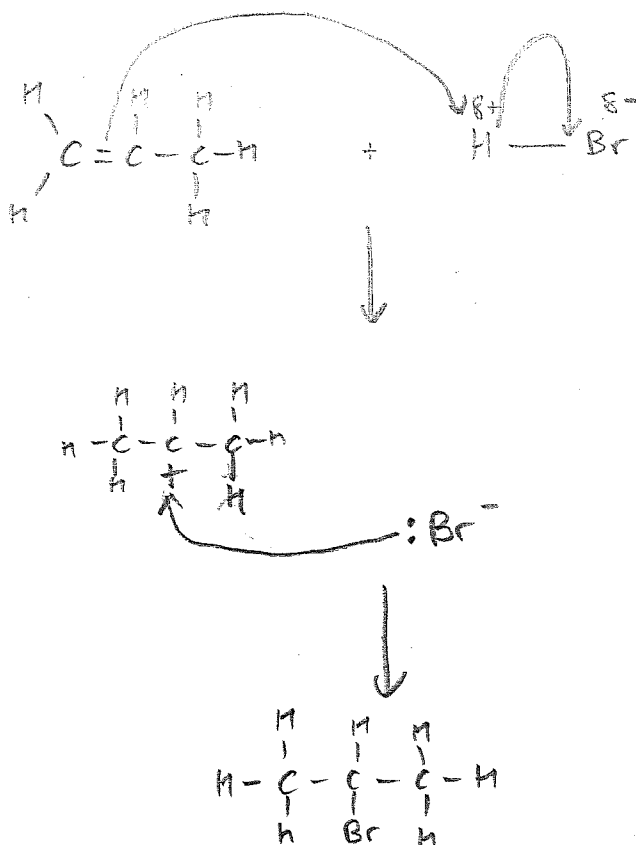
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The secondary carbocation which eventually becomes 2-bromopropane is more stable than the primary carbocation which eventually becomes 1-bromopropane.



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