

# Álcoois e fenóis

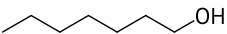
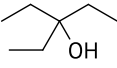
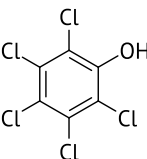
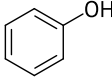
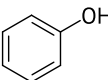
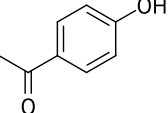
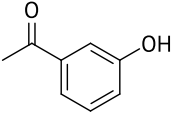
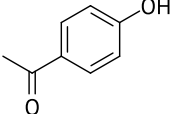
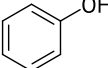

Gabriel Braun



## Nível 1

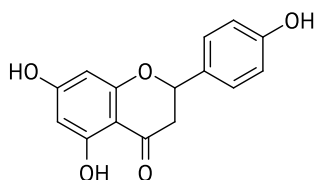
### 4I.01

Classifique os pares cujas estruturas estão representadas a seguir quanto à sua acidez.

- a.  e 
- b.  e 
- c.  e 
- d.  e 
- e.  e 

### 4I.02

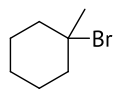
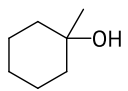
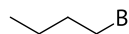
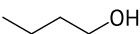
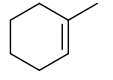
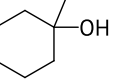

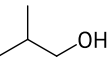

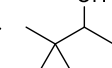
A Naringenina é um polifenol da classe dos flavonoides, encontrada principalmente em frutas cítricas.



Ordene os grupos hidroxila desse composto em função de sua acidez.

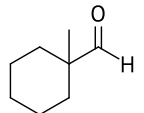
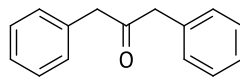
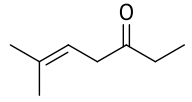
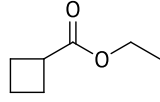
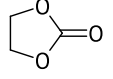
### 4I.03

Proponha uma rota de síntese para as seguintes transformações.

- a.   $\rightleftharpoons$  
- b.   $\rightleftharpoons$  
- c.   $\rightleftharpoons$  
- d.   $\rightleftharpoons$  
- e.   $\rightleftharpoons$  

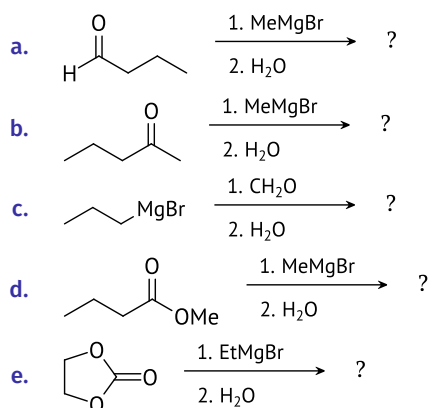
### 4I.04

Apresente os principais produtos para as reações a seguir.

- a.   $\xrightarrow[2. H_2O]{1. LiAlH_4}$  ?
- b.   $\xrightarrow[2. MeOH]{1. NaBH_4}$  ?
- c.   $\xrightarrow[2. H_2O]{1. LiAlH_4}$  ?
- d.   $\xrightarrow[2. H_2O]{1. LiAlH_4}$  ?
- e.   $\xrightarrow[2. H_2O]{1. LiAlH_4}$  ?

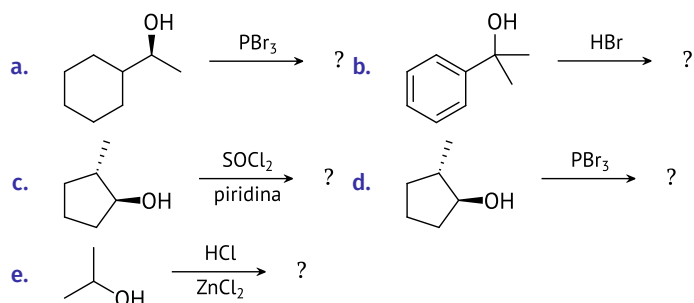
4I.05

Apresente os principais produtos para as reações a seguir.



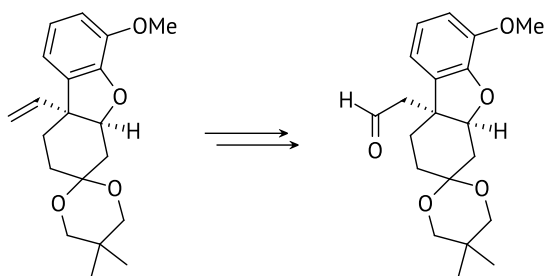
4I.06

Apresente os principais produtos para as reações a seguir.



4I.07

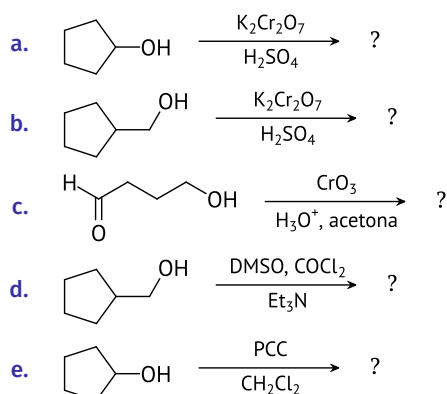
Uma das etapas na síntese da galantamina, utilizada no tratamento do Alzheimer, é apresentada a seguir.



Proponha uma rota de síntese para essa transformação.

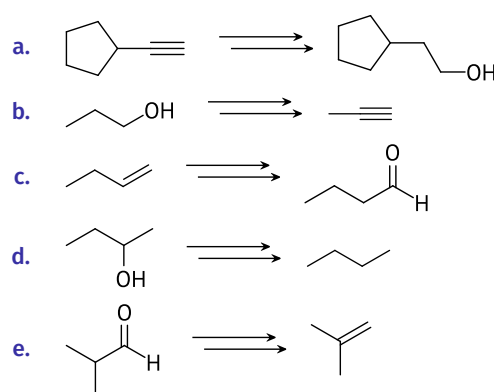
4I.08

Apresente os principais produtos para as reações a seguir.



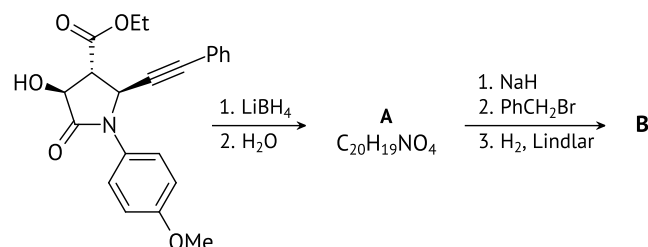
4I.09

Proponha uma rota de síntese para as seguintes transformações.



4I.10

O borohidreto de lítio é empregado em situações em que se deseja uma seletividade intermediária entre o hidreto de alumínio e lítio e o borohidreto de sódio. Considere a síntese da coalbinecina a seguir, composto com propriedades citotóxicas.

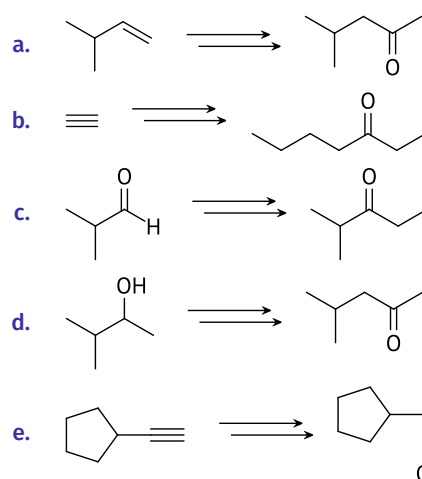


a. Apresente a estrutura dos compostos A e B.

b. Explique por que o borohidreto de lítio foi empregado.

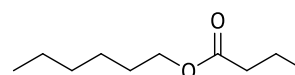
4I.11

Proponha uma rota de síntese para as seguintes transformações.



4I.12

Considere o composto a seguir.



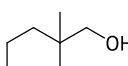
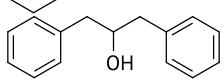
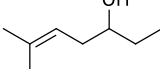
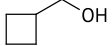
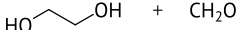
Proponha uma rota de síntese para esse composto a partir de carvão, óxido de cálcio e quaisquer outros reagentes inorgânicos.

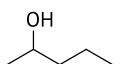
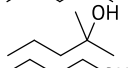
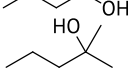
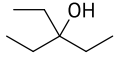
## Gabarito: Nível 1

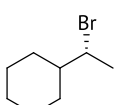
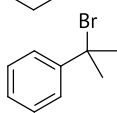
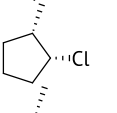
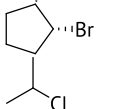
- 41.01** a. O primeiro é mais ácido.  
 b. O primeiro é mais ácido.  
 c. O segundo é mais ácido.  
 d. O segundo é mais ácido.  
 e. O segundo é mais ácido.

**41.02** A acidez aumenta da direita para a esquerda.



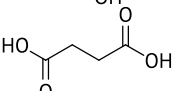


- 41.03** a. NaOH  
 b. NaOH  
 c. H<sub>2</sub>SO<sub>4</sub>  
 d. 1. BH<sub>3</sub> · THF 2. H<sub>2</sub>O<sub>2</sub>, NaOH  
 e. 1. Hg(OAc)<sub>2</sub>, H<sub>2</sub>O 2. NaBH<sub>4</sub>

- 41.04** a.   
 b.   
 c.   
 d.   
 e. 

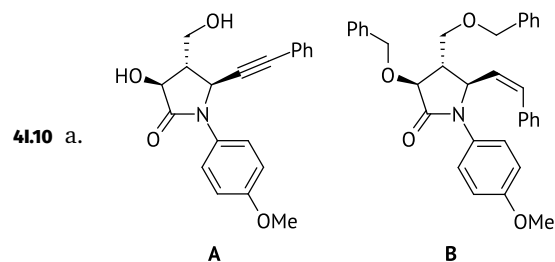
- 41.05** a.   
 b.   
 c.   
 d.   
 e. 

- 41.06** a.   
 b.   
 c.   
 d.   
 e. 

**41.07** 1. BH<sub>3</sub> · THF 2. H<sub>2</sub>O<sub>2</sub>, NaOH 3. PCC, CH<sub>2</sub>Cl<sub>2</sub>

- 41.08** a.   
 b.   
 c.   
 d.   
 e. 

- 41.09** a. 1. H<sub>2</sub>, Pd–CaCO<sub>3</sub> 2. BH<sub>3</sub> · THF 3. H<sub>2</sub>O<sub>2</sub>, NaOH  
 b. 1. H<sub>2</sub>SO<sub>4</sub>, Δ 2. Br<sub>2</sub> 3. NaNH<sub>2</sub> 4. H<sub>2</sub>O  
 c. 1. BH<sub>3</sub> · THF 2. H<sub>2</sub>O<sub>2</sub>, NaOH 3. PCC, CH<sub>2</sub>Cl<sub>2</sub>  
 d. H<sub>2</sub>SO<sub>4</sub>, Δ  
 e. 1. LiAlH<sub>4</sub> 2. H<sub>2</sub>O 3. H<sub>2</sub>SO<sub>4</sub>, Δ



b. O LiBH<sub>4</sub> é empregado para que não ocorra a redução da amida.

- 41.11** a. Rota apresentada no gabarito.  
 c. 1. EtMgBr 2. H<sub>3</sub>O<sup>+</sup> 3. Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>, H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>O  
 d. Rota apresentada no gabarito.  
 e. Rota apresentada no gabarito.

**41.12** Rota apresentada no gabarito (síntese do butanoato de hexila).