Alkanes Answers:

 $H_3C \longrightarrow CH_3$ ethane;

$$H_3$$
C CH_3 3-methylhexane;

$$\text{H}_{3}\text{C} \\ \text{H}_{3}\text{C} \\ \text{CH}_{3}$$

$$\mathsf{CH_3}$$
 3-ethyl-2-methylheptane;
$$\mathsf{H_3C}$$

$$\mathsf{H_3C}$$

$$H_3$$
C CH_3 4-methylheptane CH_3

$$\mathsf{H_3C} \underbrace{\hspace{1cm}}_{\mathsf{CH_3}} \mathsf{CH_3} \qquad \text{4-methylheptane}$$

$$H_3C$$
 CH_3
 CH_3
 CH_3
 CH_3
 CH_3

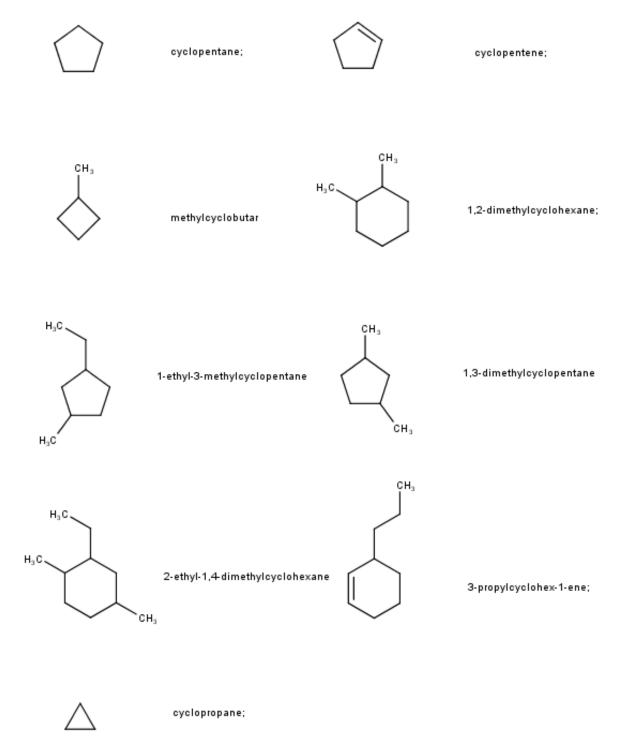
$$\mathsf{H_3C} \overset{\mathsf{CH_3}}{\longleftarrow} \\ \mathsf{CH_3} \\$$

$$\ensuremath{\mathrm{H_{3}C}}$$
 — $\ensuremath{\mathrm{CH_{3}}}$ butane:

$$\textbf{H}_{3}\textbf{C} \\ \\ \textbf{CH}_{3} \\ \\ \textbf{CH}_{3} \\ \\ \textbf{CH}_{3} \\ \\ \textbf{4-ethyl-5-methyloctane}; \\ \\ \textbf{CH}_{3} \\ \\ \textbf{CH}_{4} \\ \\ \textbf{CH}_{5} \\ \\ \textbf{CH}_{5$$

Alkenes and Alkynes Answers:

Cyclic Hydrocarbons Answers:



Carboxylic Acids Answers:

Alcohols:

3-methylbutan-2-ol;

butan-2-ol;

Aldehydes and Ketones:

Amides and Esters

$$H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{propylpenanoate} \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-propylpropanamide}; \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-methyl butanoate}; \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-methyl butanoate}; \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-methyl butanoate}; \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-methyl propanoate}; \\ H_{3}C \longrightarrow \begin{array}{c} CH_{3} & \text{N-Methyl propanamide}; \\ H_{3}C \longrightarrow$$

Amines:

ethyl(methyl)propylamine; H_2N — CH_3 methanamine; methyldipropylamine diethyl(methyl)amine ĊH₃ H₃C methyl(pentan-2-yl)amine propan-1-amine dimethylamine 3,4 dimethylpentan-1-amine CH_3 (2-ethylpentyl)dimethylamine

Haloalkanes and ethers:

Nitriles:

$$H_{3}C \longrightarrow CH_{3} \qquad 2\text{-propylhexanenitrile} \qquad N \longrightarrow CH_{3} \qquad propanenitrile$$

$$H_{3}C \longrightarrow CH_{3} \qquad (2\text{-methylpropanenitrile}) \qquad H_{3}C \longrightarrow N \qquad (2\text{-methylpropanenitrile}) \qquad (2\text{-methylpropane$$