Year 13 Science: Functional groups, naming and isomers

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Name $CH_3CH_2CH_2COCl$.

2. Name $CH_3CH(CH_3)CH_2CHO$.

3. Which of these has optical isomers: propan-2-ol, butan-2-ol, butanone or but-1-ene?

4. Which of these has geometric isomers: pent-1-ene, pent-2-ene, 2-methylbut-2-ene or pentane?

5. How many aldehydes and ketones have the formula C_4H_8O?

Exam-style question: isomers of $C_4H_8O_2$

Butanoic acid, ethyl ethanoate and 3-hydroxybutanal all have the formula $C_4H_8O_2$.

6. Name the ester $CH_3CH_2COOCH_3$, another isomer of $C_4H_8O_2$.

7. Name the branched carboxylic acid with this formula.

8. Which of the three compounds above exists as enantiomers?

9. Explain why butanoic acid boils at 164 °C and ethyl ethanoate at 77 °C.

10. Give a test that tells butanoic acid from ethyl ethanoate, with the observation.

Fix the mistake

11. Correct this statement: "But-1-ene has cis and trans isomers because it has a C=C bond."

12. Correct this statement: "$CH_3COOCH_2CH_3$ is ethanoyl ethyl, or ethyl ester ethanoate."

13. Correct this statement: "Enantiomers have different boiling points because they are different compounds."

14. Correct this statement: "The carbon in a C=O or CH_3 group can be an asymmetric carbon."