

1-How many "high energy" (~) bonds are utilized in activating the fatty acid, by esterifying it to coenzyme A? _____

2-How many times is the β -oxidation pathway repeated during oxidation of a 12-C fatty acid? _____

3-How many each of NADH_____, FADH₂_____, and Acetyl CoA_____ are produced, per 12-carbon fatty acid, in the β -oxidation pathway?

4-Oxidation of each acetyl CoA in Krebs cycle yields 3 NADH and one FADH₂ (from succinate), resulting in additional production of _____NADH and _____FADH₂.

5-Thus the yield is a total of _____NADH and _____FADH₂.

6-In the respiratory chain, 3 molecules of ATP are produced per NADH and 2 molecules of ATP per FADH₂ (electrons entering the respiratory chain via coenzyme Q). Thus from reoxidation of NADH and FADH₂ a total of _____ molecules of ATP are produced per 12-C fatty acid.

7-Add to this, one molecule of GTP is produced in Krebs Cycle (one GTP per acetyl-CoA) for a total of _____ molecules are produced.

8-Summing input and output yields a total of _____ molecules of ATP per 12-C fatty acid oxidized. Does fat yield more energy than carbohydrate? _____