The enzyme \_\_\_\_\_\_\_\_ removes terminal glucose residues from glycogen by cleaving \_\_\_\_\_\_\_\_ linkages.

Step 1: Answer

 glycogen phosphorylase, alpha (1,4)

step 2: Explanation

Fundamental to glucose metabolism is the enzyme glycogen phosphorylase. It facilitates the release of glucose monomers from the liver's stored glycogen polymer (glycogenolysis). In a non-ATP-dependent process, GP breaks down glycogen to produce glucose-1-phosphate (G-1-P).

Phosphate (Pi) and PLP (Pyridoxal Phosphate), a cofactor generated from vitamin B6, enter glycogen phosphorylase. [10] In the end, glucose-1-phosphate, a glucose residue, is removed from glycogen.

The more prevalent link is the alpha-1,4-glycosidic one, and it gives glycogen its energy-storing helical structure. Every ten or so sugars, there are alpha-1,6-glycosidic bond bonds that act as branching points. Glycogen is a highly branched polysaccharide as a result.

 Enzyme activity stops when the enzyme reaches a point \_\_\_\_\_\_\_ glucose residues from a branch point, which is a(n) \_\_\_\_\_\_\_\_ linkage

.step 1: Answer

Four, alpha(1,6)

Step 2: Explanation

The enzyme reaction intensifies as the concentration of the substrate rises until the substrate has taken up every active site. The enzyme is saturated when all of its active sites are taken up. More substrate cannot be added after this point of saturation without changing the rate of the reaction.

An enzyme with the scientific name glycogen phosphorylase-limit dextrin 6-alpha-glucohydrolase is amylo-alpha-1,6-glucosidase. Using this enzyme, the following chemical reaction is catalysed. Glycogen's alpha-D-glucosidic branch connections are hydrolyzed. A chain of glucose without substitutes is hydrolyzed by this enzyme.

The \_\_\_\_\_\_\_\_ of the debranching enzymes moves three glucose residues to another branch, connecting them by a(n) \_\_\_\_\_\_\_\_ linkage

Step 1: Answer

Transferase, alpha(1,4)

Step 2: Explanation

Amylo-1,6-glucosidase and 4-alpha-glucanotransferase are the two catalytic sites on the single polypeptide that makes up the debranching enzyme. There are four categories for debrancher deficient patients. Patients with GSD IIIa are deficient in both liver and muscle glucosidase and transferase activities.

The \_\_\_\_\_\_\_\_ activity of the debranching enzyme removes the glucose at its \_\_\_\_\_\_\_\_ linkage.

Step 1: Answer

Glucosidase, alpha (1,6)

Step 2:

Through glucosyltransferase and glucosidase activity, a debranching enzyme is a molecule that aids in the breakdown of glycogen, which serves as a storage of glucose in the body. Debranching enzymes release glucose reserves from glycogen stores in the muscles and liver in conjunction with phosphorylases.

 The enzyme \_\_\_\_\_\_\_\_ continues removing terminal glucose residues

Step 1: Answer

glycogen phosphorylase

step 2: Explanation

Fundamental to glucose metabolism is the enzyme glycogen phosphorylase. It facilitates the release of glucose monomers from the liver's glycogen polymer (glycogenolysis). In a non-ATP-dependent process, GP breaks down glycogen to produce glucose-1-phosphate (G-1-P).