What If Scenarios….ATP Production

	Situation	Response	
1	After glycolysis, only 1 molecule of pyruvate enters the mitochondrial matrix. Assume one glucose enters glycolysis.	HE / ATP G: 2 NADH → 2 / 4 PO: 1 NADH → 3 KC: 3 NADH → 9 1 FADH2 → 2	21 ATP total
2	The inner mitochondrial membrane is disrupted such that it no longer controls what enters/exits the matrix. Assume one glucose enters glycolysis.	HE / ATP G: 2 NADH → 2 / ∅ PO: 2 NADH → ∅ KC: 6 NADH → 2 / ∅ 2 FADH2 → ∅	4 ATP total
3	NADH dehydrogenase is removed from the ETC. Assume one glucose enters glycolysis.	HE / ATP G: 2 NADH → 2 / 0 or 4 PO: 2 NADH → ∅ KC: 6 NADH → 2 / ∅ 2 FADH2 → 4	8 or 12 ATP total
4	Cytochrome oxidase complex is removed form the ETC. Assume one glucose enters glycolysis.	HE / ATP G: 2 NADH → 2 / ∅ PO: 2 NADH → ∅ KC: 6 NADH → 2 / ∅ 2 FADH2 → ∅	4 ATP total