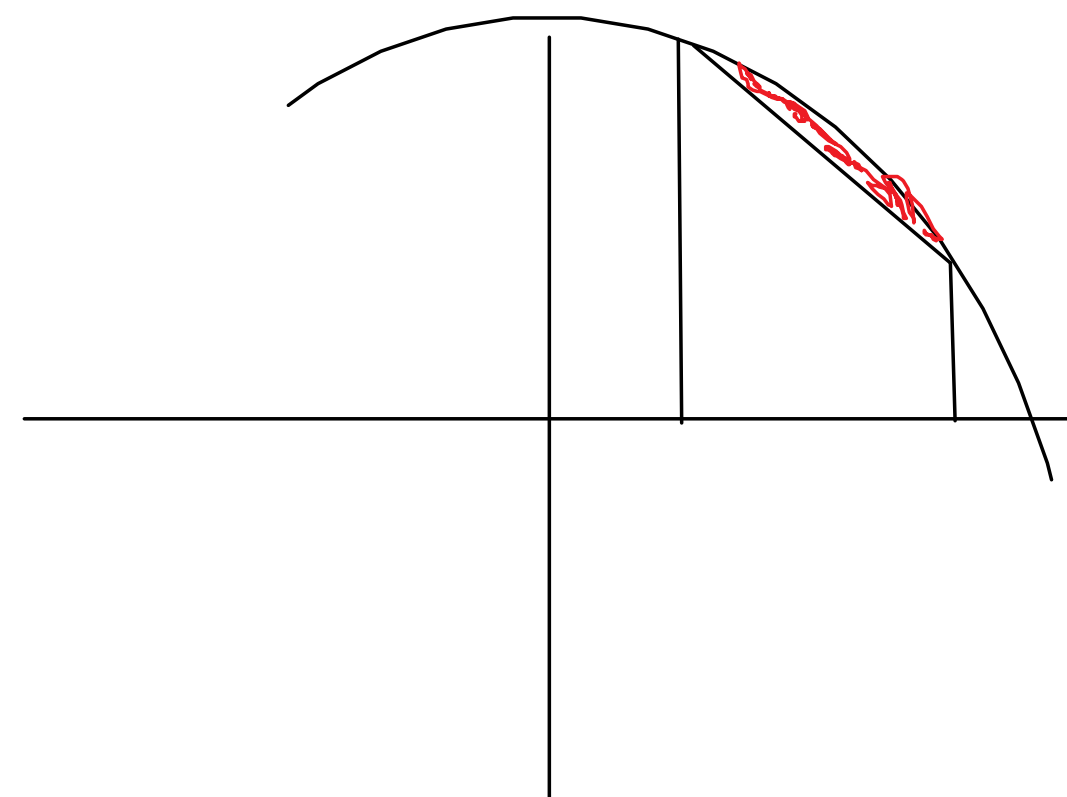


The trapezium rule gives an overestimate when the curve is curving upwards, because when you make the trapezium on the curve, there is a slight overlap over the curve, as shown by the diagram and the shaded red part.



The trapezium rule gives an underestimate when the curve is curving downwards, because when you make the trapezium on the curve, there is a slight part that misses the curve, as shown by the diagram and the shaded red part.