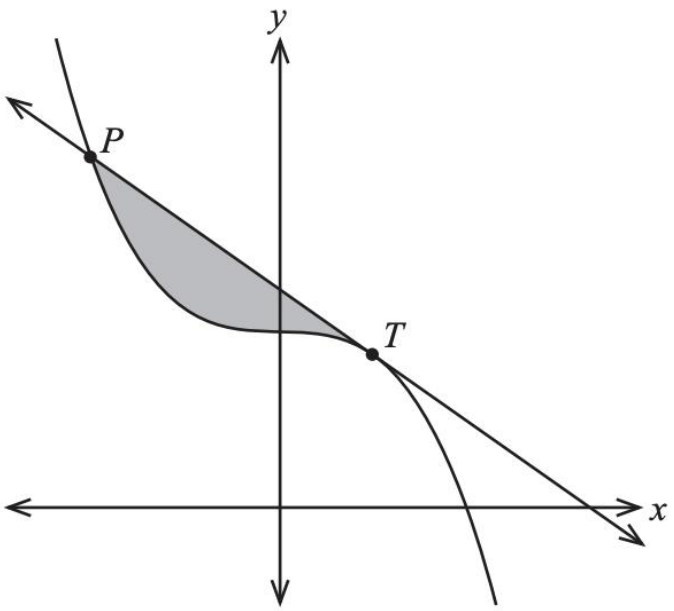
Question 15 **(8 marks)**

Part of the graph of $x^3 + 8y = 64$ is shown below. A tangent is drawn to the curve at point $T(2,7)$, intersecting the curve again at point P.



(a) Determine the equation of the tangent to the curve at point T. (2 marks)

(b) Determine the area of the shaded region. (3 marks)

The shaded region is then rotated about the x axis.

(c) Calculate the volume of the resulting solid, correct to 0.01 cubic units. (3 marks)