



So,  $f(x) = 8 - x$

$g(x) = 3$

Now,

Volume of revolution (V) =  $\pi \int_0^3 f(x)^2 - g(x)^2 dx$

=  $\pi \int_0^3 (8-x)^2 - (3)^2 dx$

=  $\pi \int_0^3 (8-x)^2 dx - \pi \int_0^3 9 dx$

=  $-\pi \left[ \frac{(8-x)^3}{3} \right]_0^3 - \pi [9x]_0^3$

=  $-\pi \left( \frac{125}{3} - \frac{512}{3} \right)$

=  $-\pi \times 27$

=  $129\pi - 27\pi$

=  $102\pi$  cubic units

\* Remember that, when ~~we~~ the revolution  
of axis is through a line,  
the distance is measured from  
that line