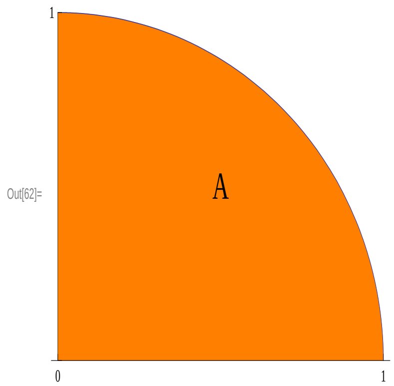
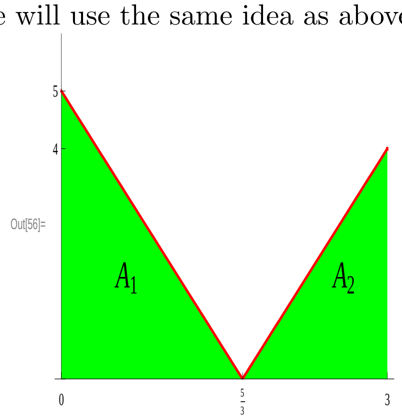


We know the area of the whole circle is $\pi r^2 = \pi 1^2 = \pi$. Since we only need 1/4th of it the area we are looking for is equal to $\pi/4$ or
$\int_0^1 \sqrt{1-x^2}\, dx = \frac{\pi}{4}$

b) Calculate $\int_0^3 |3x-5|\, dx$

We will use the same idea as above. First plot the area we are dealing with



Note that the area asked is the sum of the areas A_1 and A_2 or
$\int_0^3 |3x-2|\, dx = A_1 + A_2$.And since both of these areas are of triangular shape we can easily calculate them
$A_1 = \frac{1}{2}5 \cdot \frac{5}{3} = \frac{25}{6}$ and $A_2 = \frac{1}{2}4 \cdot \frac{4}{3} = \frac{12}{6}$.
Then $\int_0^3 |3x-1|\, dx = \frac{25}{6} + \frac{12}{6} = \frac{37}{6}$