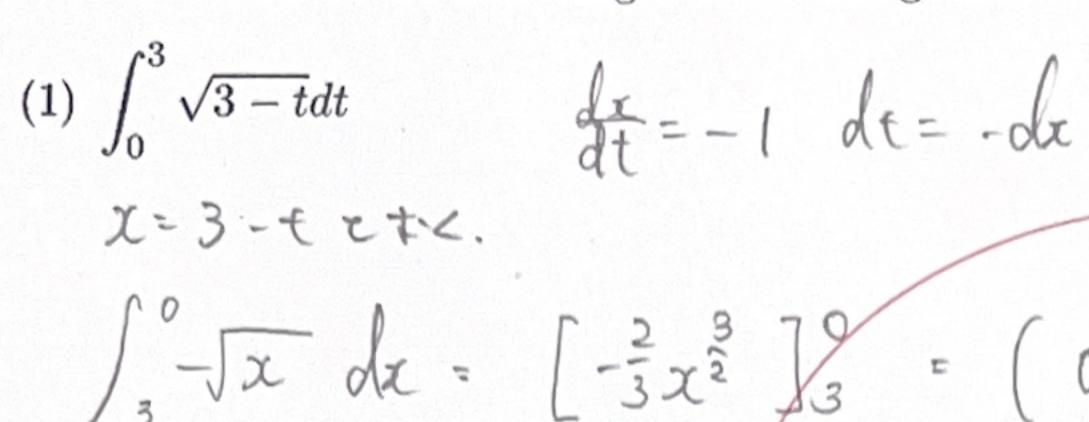
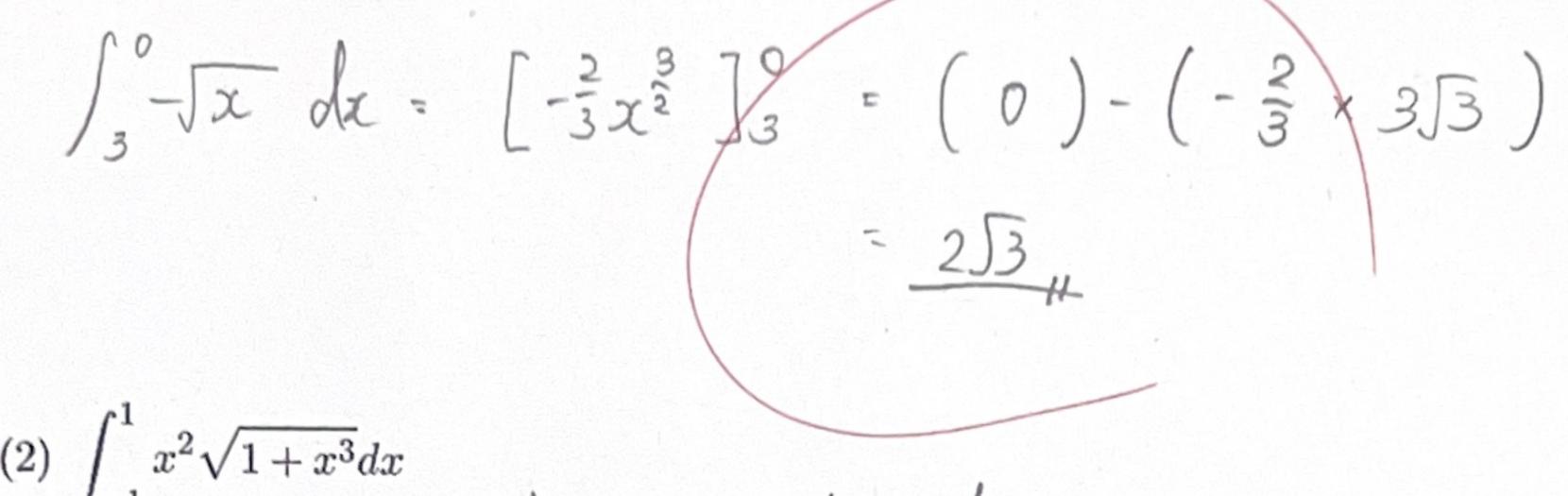
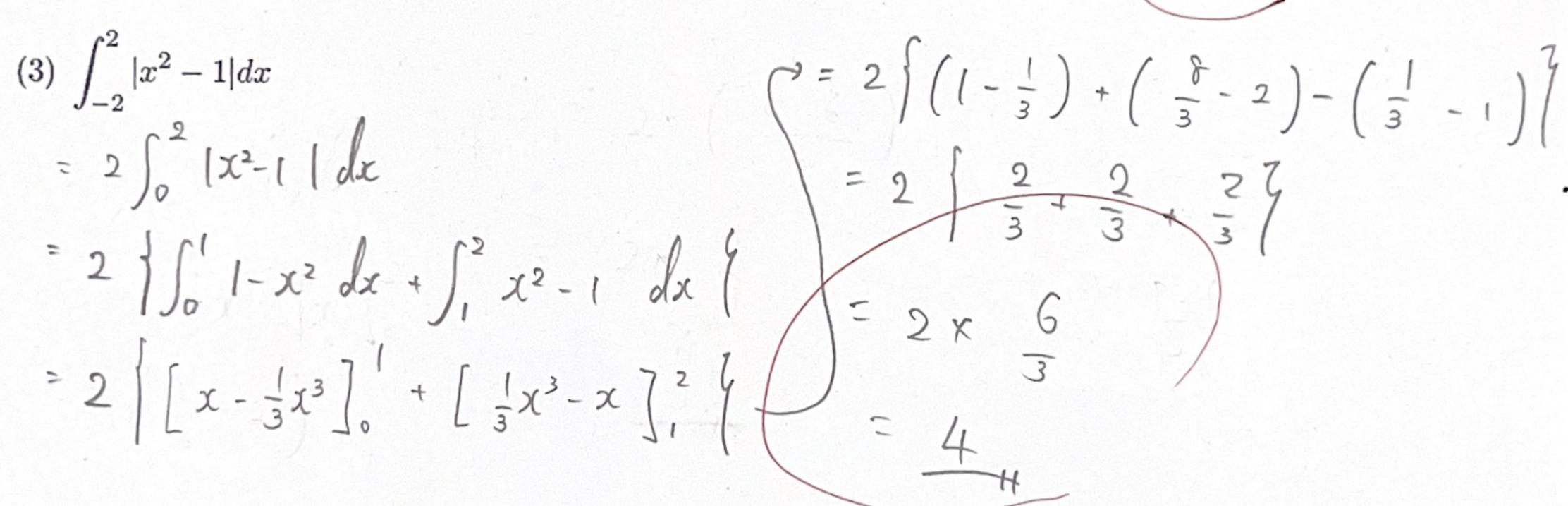
Q1 Find the values of the following definete integrals:





(2) 
$$\int_{-1}^{1} x^{2} \sqrt{1 + x^{3}} dx$$
  
 $t = 1 + \chi^{2}$ ,  $\int_{0}^{1} x^{2} dt \times \chi^{2} = \frac{1}{3} \int_{0}^{2} \int_{0}^{1} t dt = \frac{1}{3} \left[ \frac{2}{3} t^{\frac{3}{2}} \right]_{0}^{2} = \frac{4\sqrt{2}}{9}$ 



Q2 Find the constants a, b and c that

$$\int_{-1}^{1} f(x)dx = af(-1) + bf(0) + cf(1)$$

for any quadratic function f(x).

$$fox = dx^2 + \beta x + \gamma z + c$$

$$\int_{-1}^{1} fox dx = \int_{-1}^{1} dx^2 + \beta x + \gamma dx$$

$$= \frac{2}{3}d + 2\gamma$$

$$af(-1) = a(d-\beta+r)$$

$$b(f(\omega)) = br$$

$$cf(1) = c(d+\beta+r)$$

$$\frac{2}{3}d+2\Upsilon = \alpha(d-\beta+\Upsilon)+b\Upsilon+c(d+\beta+\Upsilon)$$

$$\frac{1^{2}}{3}=a+c$$

$$0=-\alpha+c$$

$$2=\alpha+b+c$$

$$1=\frac{4}{3}$$