

(1)[6 points] Evaluate

$$\int \tan^5 x \, dx$$

(2)[3 points] Evaluate

$$\int \frac{x}{\sqrt{x^2 - 7}} \, dx$$

(3)[6 points] Evaluate

$$\int_{\sqrt{2}}^2 \frac{1}{t^2 \sqrt{t^2 - 1}} dt$$