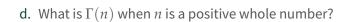
## Math 142 Quiz 3

- **1.** For any number n, define  $\Gamma(n) = \lim_{t \to \infty} \int_0^t x^{n-1} e^{-x} \, dx$ .
  - $\text{a. Find }\Gamma(1).$

b. Find  $\Gamma(3)$ .

c. Find  $\Gamma(4)$ .



**2.** Let 
$$s>0$$
 be a constant. Find  $\lim_{t\to\infty}\int_0^t e^{-sx}\sin x\,dx$ .