

EE411 Homework 1

- 1) (2.1-1) Find the average power of the periodic signal in Fig. 1.

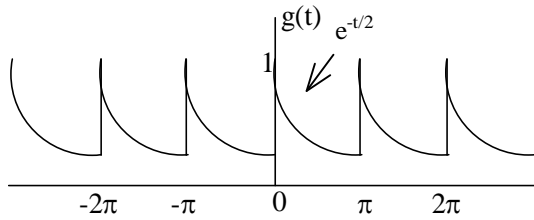


Fig. 1

- 2) (2.1-8) Determine the power and the rms value for each of the following signals:

- (a) $10 \cos(100t + \pi/3)$
- (b) $10 \cos(100t + \pi/3) + 16 \sin(150t + \pi/5)$
- (c) $(10 + 2 \sin 3t) \cos 10t$
- (d) $10 \cos 5t \cdot \cos 10t$

- 3) Evaluate the following integrals:

- (a) $\int_{-1}^2 (t+1) \delta(t) dt$
- (b) $\int_1^2 (t+1) \delta(t) dt$
- (c) $\int_{-2}^2 (2t^2 + 1) \delta(t-1) dt$
- (d) $\int_{-\infty}^{\infty} e^{-t} \delta(2t-1) dt$
- (e) $\int_{-5}^5 [u(t) - u(t-1)] dt$