TIPC
Ch 4
Sec 4.6

Sec 4.6 Review

1. $f(x) = \sin 14\pi x - \cos 6\pi x$

$P = \frac{2\pi}{14\pi} = \frac{1}{7}$ $\quad P = \frac{2\pi}{6\pi} = \frac{1}{3}$ P's not =; not a sinusoid

2. $f(x) = 3\sin x + 6\cos x$

$P = 2\pi$ $\quad P = 2\pi$ P's =; graph is a sinusoid

3. Yes; damping factor $-3x^2$ As $x \to 0$, $f(x) \to 0$

4. Yes; damping factor $(\frac{1}{2})^x$ As $x \to \infty$, $f(x) \to 0$

5. $\lim_{x \to \infty} f(x) \to 0$

6. $\lim_{x \to \infty} f(x) \to 0$

7. $y = |\sin x|$

$f(x) = |\sin x|$

$f(x+2\pi) = |\sin x + 2\pi|$

since P of sin $= 2\pi$

$= |\sin x|$

(no change) → Periodic

8. $f(x) = 2x + \sin 5x$

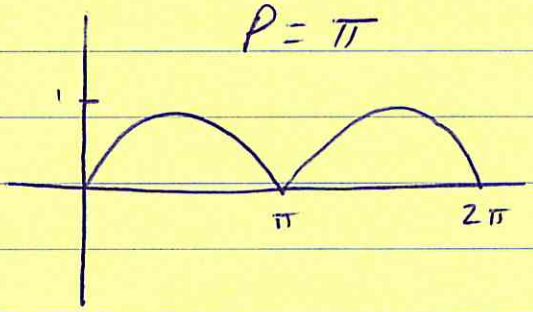
$f(x+2\pi) = 2(x+2\pi) + \sin 5(x+2\pi)$

$= 2x + 4\pi + \sin 5x$ $<$ since sin P's $= 2\pi$, =

$f(x) \neq f(x+2\pi)$

not periodic

$P = \pi$

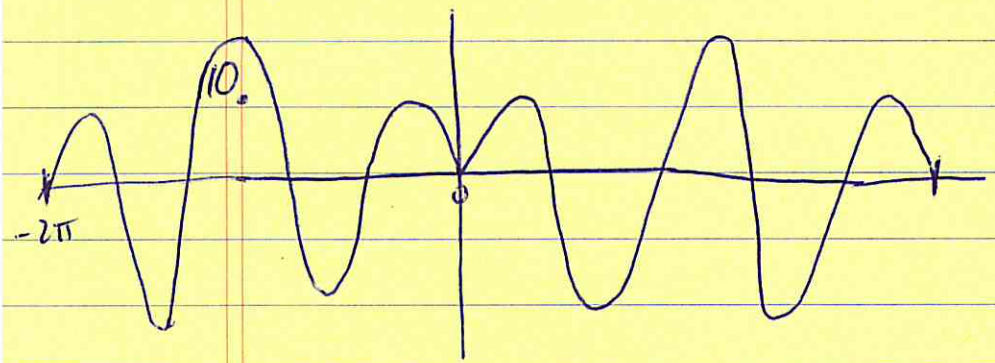


9. $y = \sin(5x) - x$

$y_1 = -x + 1$

$y_2 = -x - 1$

10.



$[-2\pi, 2\pi]$ by $[-10, 10]$

$P = 2\pi$