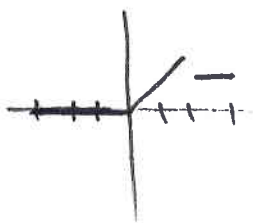
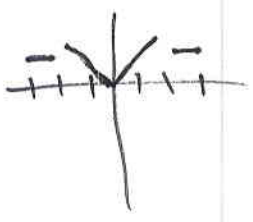


# Math 2415 Sketching Fourier Handout Key

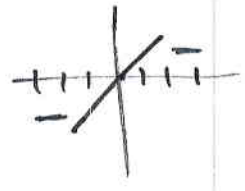
1. a.  $f(x) = \begin{cases} 0 & -3 \leq x < 0 \\ x & 0 \leq x < 2 \\ 1 & 2 \leq x < 3 \end{cases}$   
 neither



b.  $f(x) = \begin{cases} 1 & -3 \leq x < -2 \\ -x & -2 \leq x < 0 \\ x & 0 \leq x < 2 \\ 1 & 2 \leq x < 3 \end{cases}$   
 even



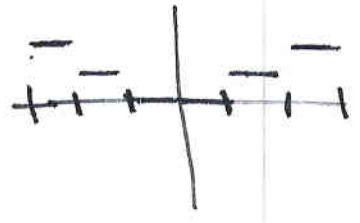
c.  $f(x) = \begin{cases} -1 & -3 \leq x < -2 \\ x & -2 \leq x < 2 \\ 1 & 2 \leq x < 3 \end{cases}$   
 odd



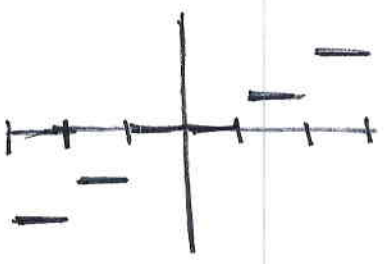
2 a.  $f(x) = \begin{cases} 0 & -3\pi \leq x < \pi \\ 1 & \pi \leq x < 2\pi \\ 2 & 2\pi \leq x < 3\pi \end{cases}$   
 neither



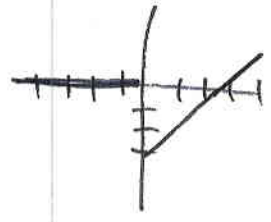
b.  $f(x) = \begin{cases} 2 & -3\pi \leq x < -2\pi \\ 1 & -2\pi \leq x < -\pi \\ 0 & -\pi \leq x < \pi \\ 1 & \pi \leq x < 2\pi \\ 2 & 2\pi \leq x < 3\pi \end{cases}$   
 even



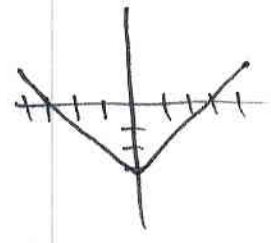
c.  $f(x) = \begin{cases} -2 & -3\pi \leq x < -2\pi \\ -1 & -2\pi \leq x < -\pi \\ 0 & -\pi \leq x < \pi \\ 1 & \pi \leq x < 2\pi \\ 2 & 2\pi \leq x < 3\pi \end{cases}$   
 odd



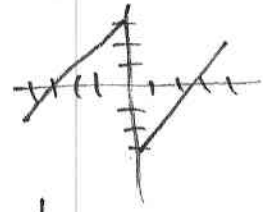
3.a.  $f(x) = \begin{cases} 0 & -4 \leq x < 0 \\ x-3 & 0 \leq x < 4 \end{cases}$   
 neither



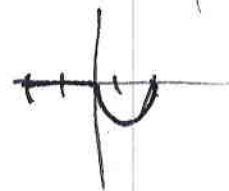
b.  $f(x) = \begin{cases} -x-3 & -4 \leq x < 0 \\ x-3 & 0 \leq x < 4 \end{cases}$   
 even



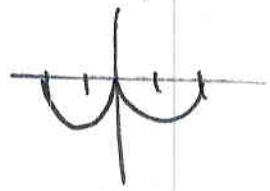
c.  $f(x) = \begin{cases} x+3 & -4 \leq x < 0 \\ x-3 & 0 \leq x < 4 \end{cases}$   
 odd



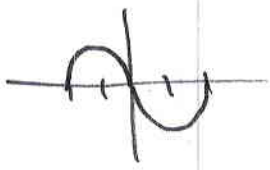
4a.  $f(x) = \begin{cases} 0 & -2 \leq x < 0 \\ x^2-2x & 0 \leq x < 2 \end{cases}$   
 neither



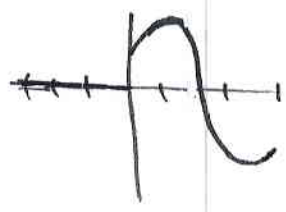
b.  $f(x) = \begin{cases} x^2+2x & -2 \leq x < 0 \\ x^2-2x & 0 \leq x < 2 \end{cases}$   
 even



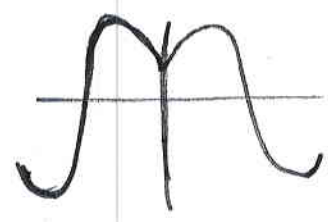
c.  $f(x) = \begin{cases} -x^2-2x & -2 \leq x < 0 \\ x^2-2x & 0 \leq x < 2 \end{cases}$   
 odd



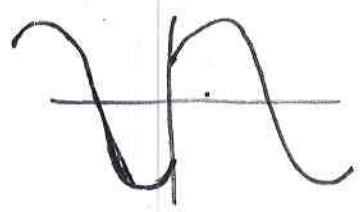
5a.  $f(x) = \begin{cases} 0 & -3 \leq x < 0 \\ x^3-5x^2+5x+1 & 0 \leq x < 3 \end{cases}$   
 neither



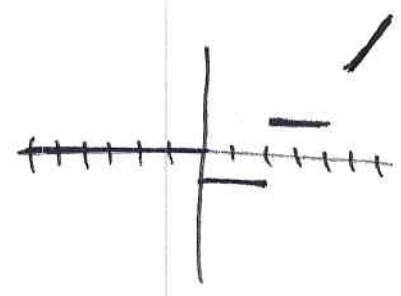
b.  $f(x) = \begin{cases} -x^3-5x^2-5x+1 & -3 \leq x < 0 \\ x^3-5x^2+5x+1 & 0 \leq x < 3 \end{cases}$   
 even



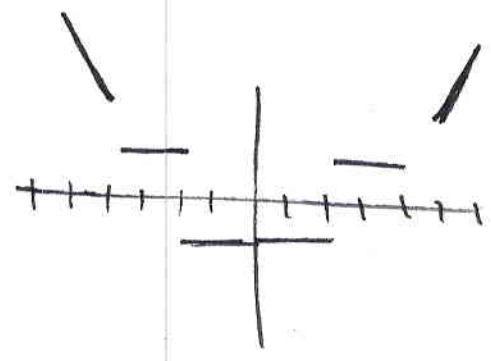
c.  $f(x) = \begin{cases} x^3+5x^2+5x-1 & -3 \leq x < 0 \\ x^3-5x^2+5x+1 & 0 \leq x < 3 \end{cases}$   
 odd



b. a.  $f(x) =$    
 neither  $\left\{ \begin{array}{ll} 0 & -6 \leq x < 0 \\ -1 & 0 \leq x < 2 \\ 1 & 2 \leq x < 4 \\ 2x-3 & 4 \leq x < 6 \end{array} \right.$



b.  $f(x) =$    
 even  $\left\{ \begin{array}{ll} -2x-3 & -6 \leq x < -4 \\ 1 & -4 \leq x < -2 \\ -1 & -2 \leq x < 2 \\ 1 & 2 \leq x < 4 \\ 2x-3 & 4 \leq x < 6 \end{array} \right.$



c.  $f(x) =$    
 odd  $\left\{ \begin{array}{ll} 2x+3 & -6 \leq x < -4 \\ -1 & -4 \leq x < -2 \\ 1 & -2 \leq x < 0 \\ -1 & 0 \leq x < 2 \\ 1 & 2 \leq x < 4 \\ 2x-3 & 4 \leq x < 6 \end{array} \right.$

