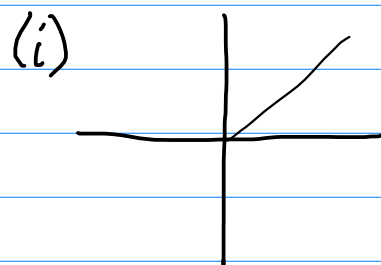
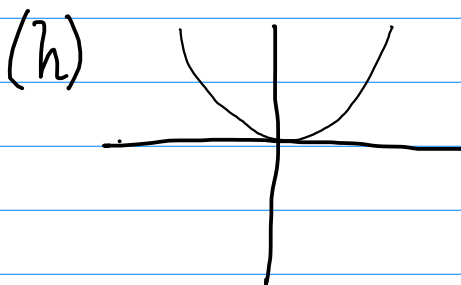
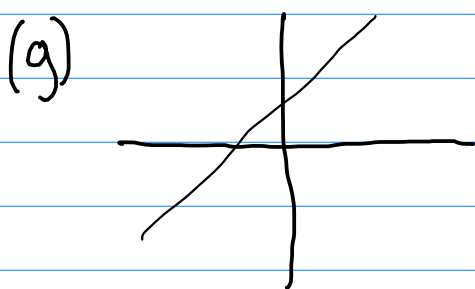
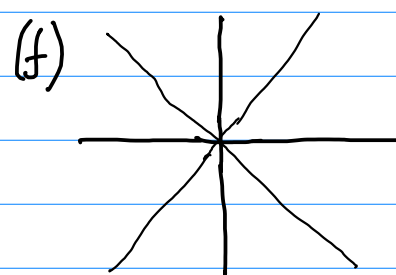
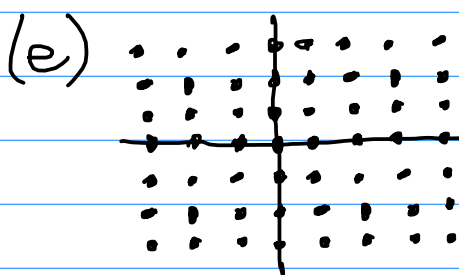
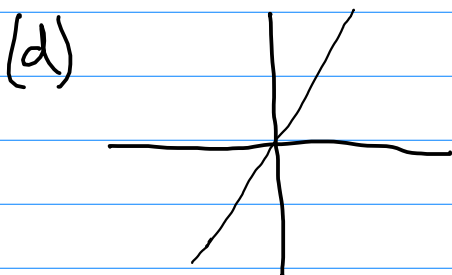
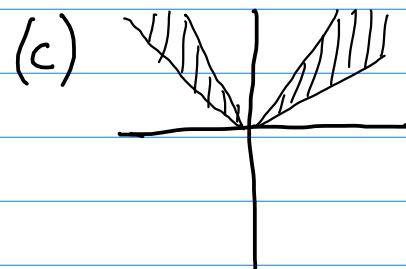
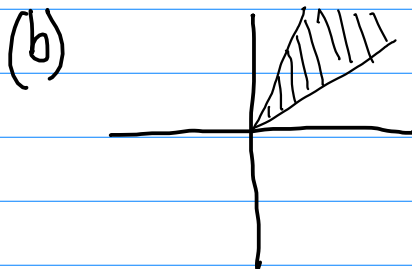
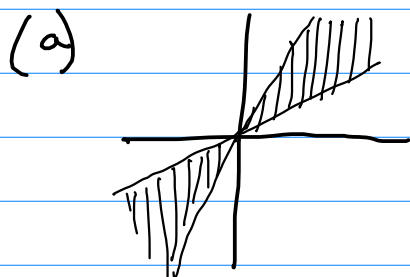


# Discussion - July 1

1. For each of the following subsets of  $\mathbb{R}^2$ , determine whether the subset is closed under addition, scalar mult., both, or neither.



2. Determine the same for the following sets:

(a)  $V = \{ \text{even integers} \}$       (b)  $V = \{ \text{odd integers} \}$

(c)  $V = \{ 2 \times 2 \text{ } A \text{ with } A \text{ invertible} \}$

(d)  $V = \{ \text{polynomials } f \text{ with } f(2) = 0 \}$

(e)  $V = \{ 2 \times 2 \text{ } A \text{ with all entries negative} \}$

(f)  $V = \{ \text{differentiable functions } f \text{ with } f'(2) = 0 \}$

(g)  $V = \{ \text{continuous functions with } f(2) = 1 \}$

(h)  $V = \{ \text{polynomials with constant term } 2 \}$

(i)  $V = \{ \text{even functions} \}$        $V = \{ \text{odd functions} \}$

(j)  $V = \{ \text{power series with radius of convergence } \geq 1 \}$