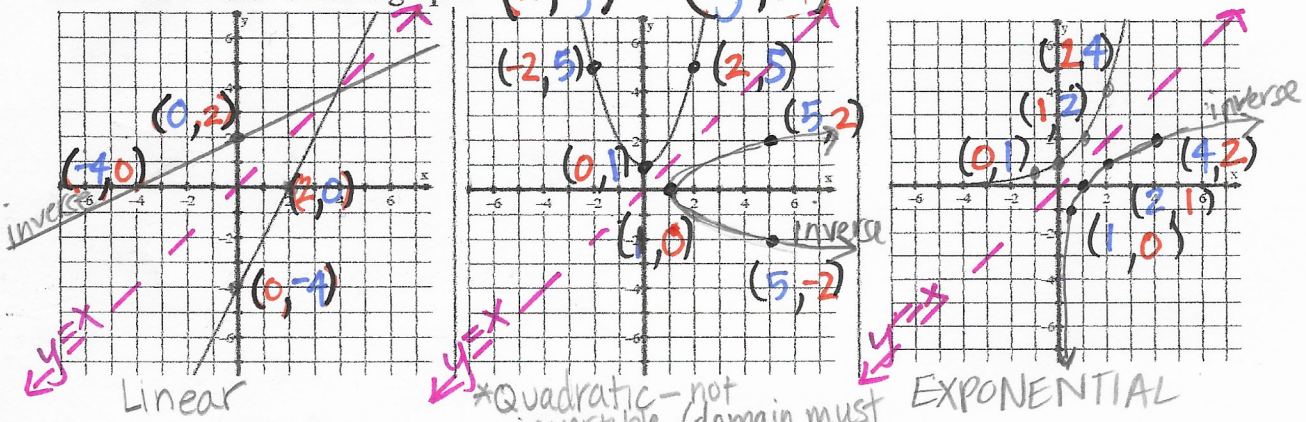
*The function g is an inverse of f, if & only if f(a)=b AND g(b)=a.

# Inverses

An inverse is a function that undoes or reverses another function.

A function is said to be invertible if the inverse is also a function.

Draw the inverse of each graph. (x,y)→(y,x)




Linear

*Quadratic—not invertible (domain must be restricted)

EXPONENTIAL

Features of inverses:

| | |
|---|---|
| Inputs & outputs switch | Corresponding rates of change are reciprocals |
| x & y intercepts switch | Graph is a reflection over y=x |
| On graph, axes switch | Domain & Range switch |
| Asymptotes switch (horiz⇔vert) *If there is any | (x,y) → (y,x) |
| In context, they are same situation from different perspective (point of view) | Undo each other: $f(f^{-1}(x)) = f^{-1}(f(x)) = x$ |