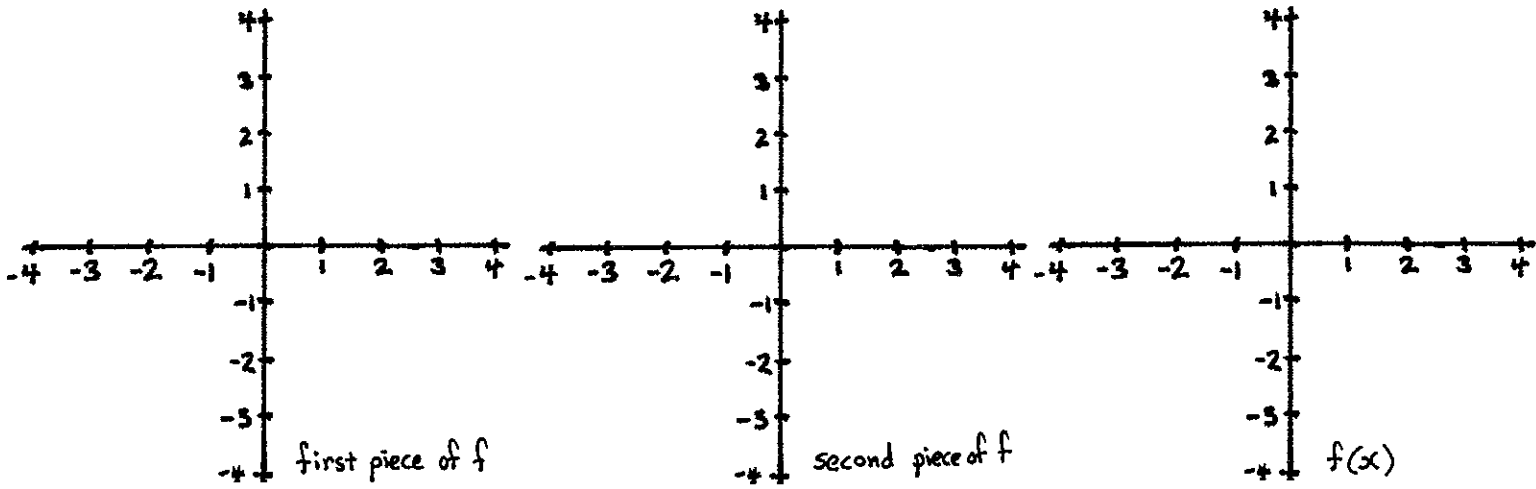
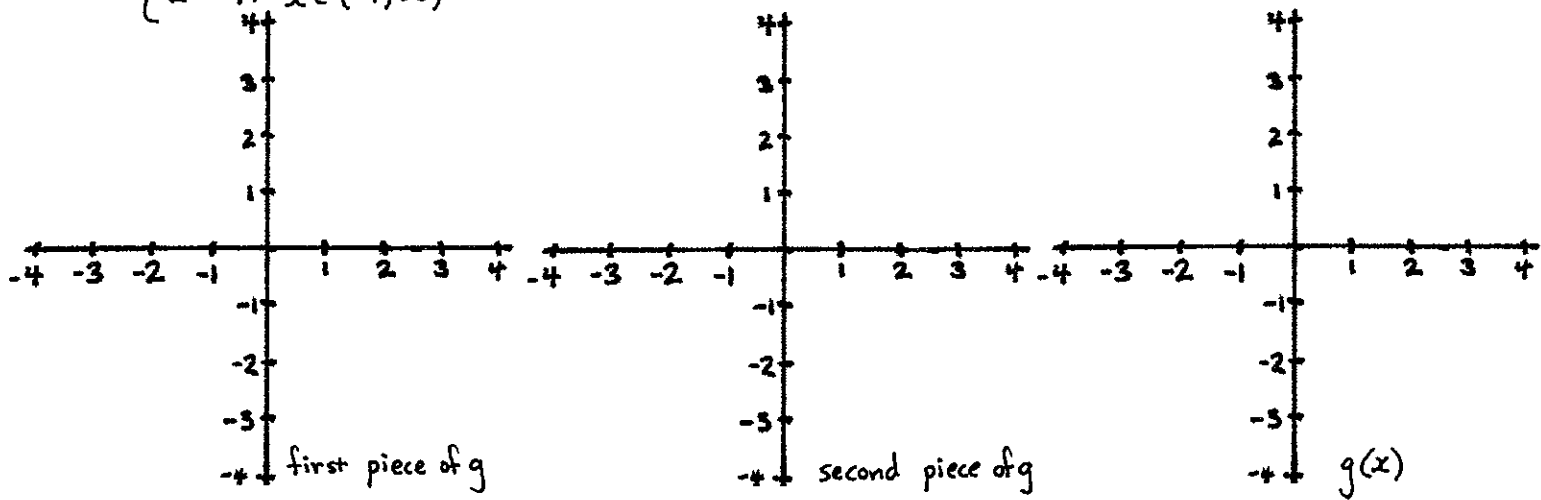


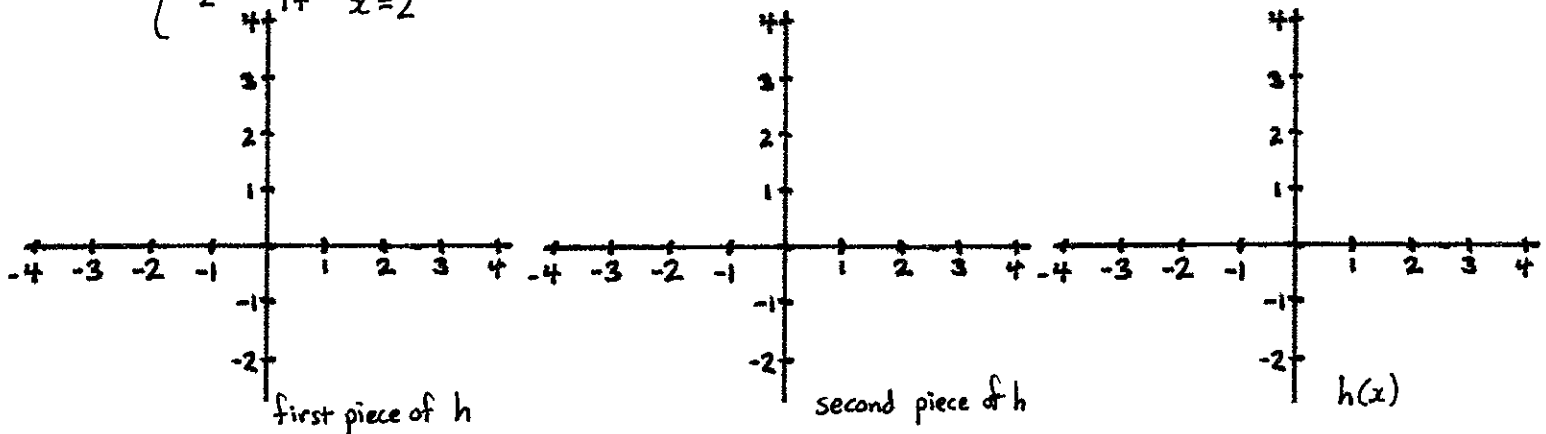
$$f(x) = \begin{cases} x^2 & \text{if } x \in (-\infty, 0) \\ x & \text{if } x \in [0, \infty) \end{cases}$$



$$g(x) = \begin{cases} -3 & \text{if } x \in (-4, -1] \\ 2 & \text{if } x \in (-1, \infty) \end{cases}$$

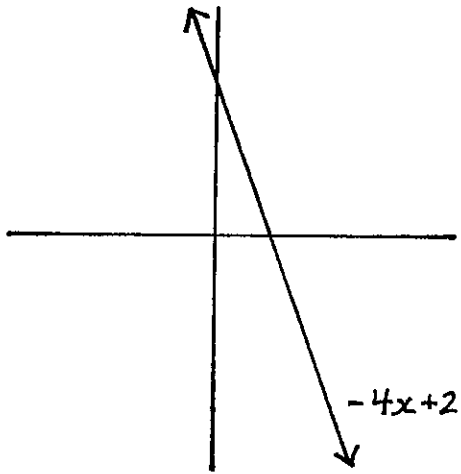


$$h(x) = \begin{cases} \sqrt[3]{x} & \text{if } x \neq 2 \\ -2 & \text{if } x = 2 \end{cases}$$

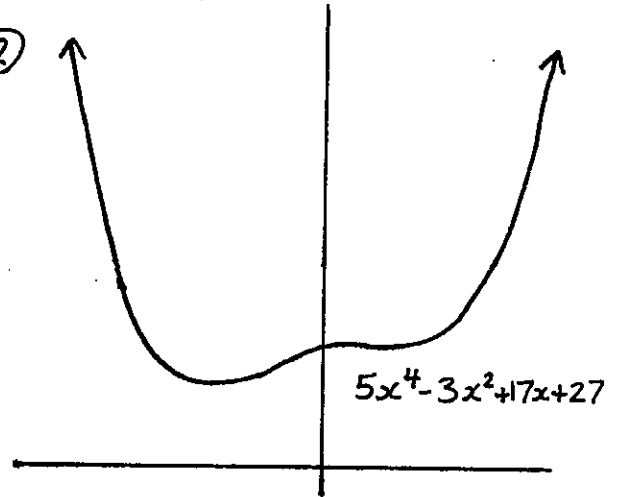


For #1-4, label all y-intercepts and x-intercepts.

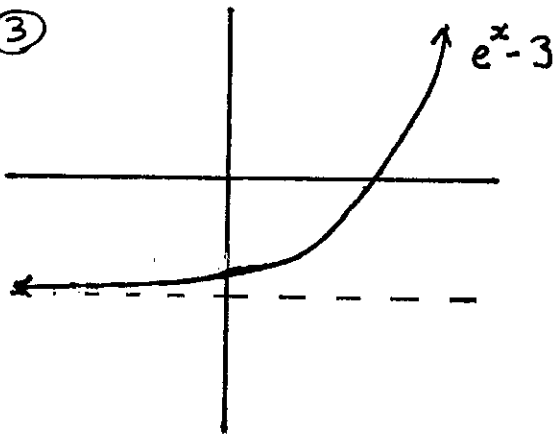
①



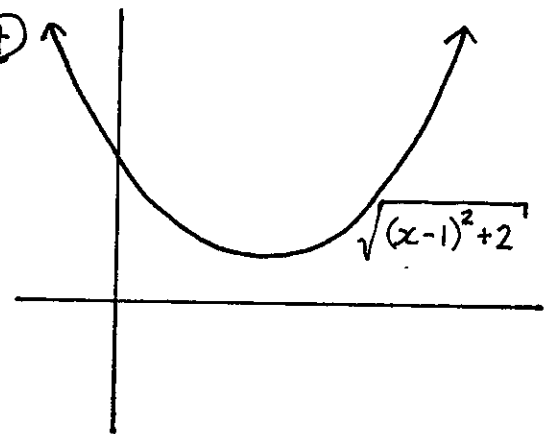
②



③



④



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⑤ Solve for  $x$  if  $|2x+1| < 5$ .

⑥ Solve for  $x$  if  $|3-4x| < 1$ .

## Linear Algebra

$$\textcircled{7} \det \begin{pmatrix} 3 & 2 \\ 1 & -1 \end{pmatrix} =$$

$$\textcircled{8} \begin{pmatrix} 3 & 2 \\ 1 & -1 \end{pmatrix}^{-1} =$$

$$\textcircled{9} \begin{pmatrix} 3 & 2 \\ 1 & -1 \end{pmatrix}^{-1} \begin{pmatrix} 3 & 2 \\ 1 & -1 \end{pmatrix} =$$

$\textcircled{10}$  Write the following system of equations as a single matrix equation.

$$\begin{cases} -x + 2y - z = 0 \\ -2x + 2y - z = 1 \\ 3x - y + z = -1 \end{cases}$$

$\textcircled{11}$  Solve for  $x, y,$  and  $z$  in the above system. Use that

$$\begin{pmatrix} -1 & 2 & -1 \\ -2 & 2 & -1 \\ 3 & -1 & 1 \end{pmatrix}^{-1} = \begin{pmatrix} 1 & -1 & 0 \\ -1 & 2 & 1 \\ -4 & 5 & 2 \end{pmatrix}$$

checking your work

⑫ Is  $x = e^{5/3}$  a solution to the equation  
 $\log_e(x^4) - \log_e(x) - 3 = 2$  ?

⑬ Is  $x = \log_e(2) + 3$  a solution to the equation  
 $4e^{x-3} = 8$  ?

P.S. Studying a little often is better than studying a lot once.