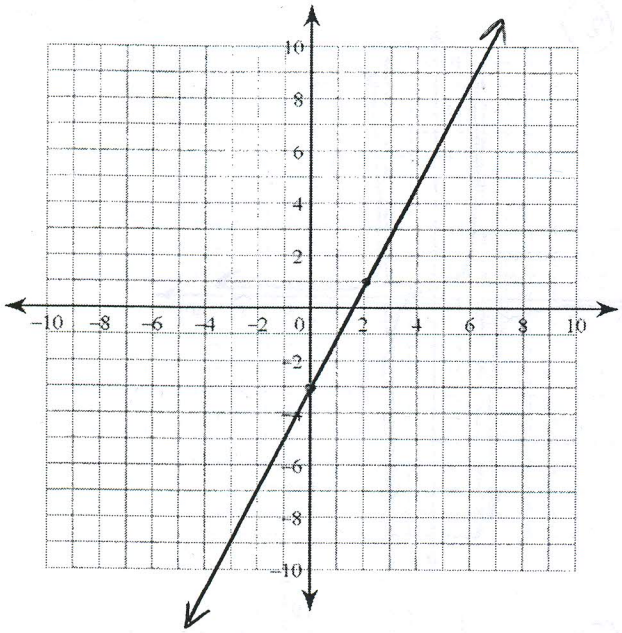
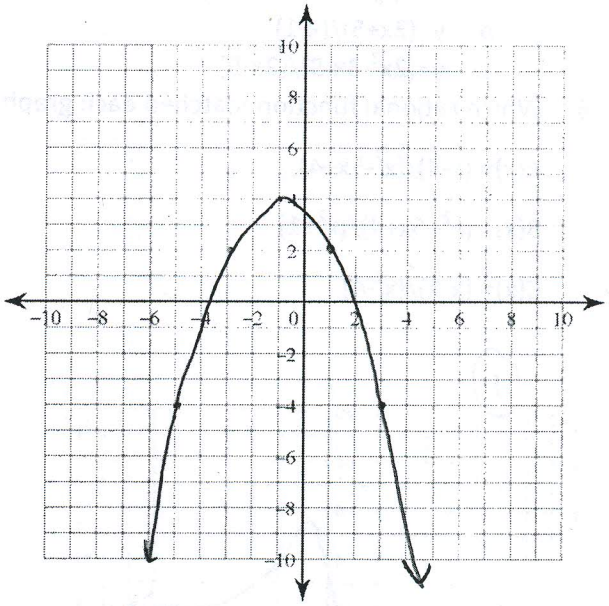
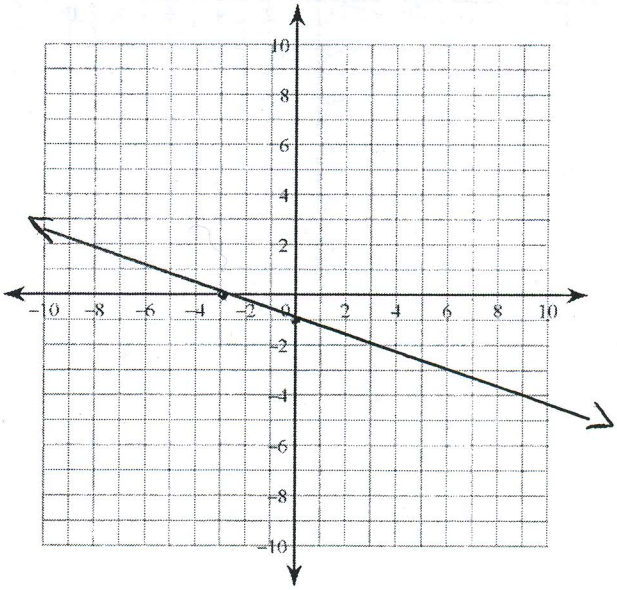
Practice Test Pre-Cal 12

1. What transformations can you apply to $y=\sqrt{x}$ to obtain the graph of each function? State the domain and range in each case.
   a. $y=5\sqrt{x}+20$
   b. $y=\sqrt{-2x}-8$
   c. $y=-\sqrt{1/6(x-11)}$
2. Identify and compare the domains and ranges of the function in each pair and explain why they differ.
   a. $y=4-x^2$ and $y=\sqrt{4-x^2}$
   b. $y=2x^2+24$ and $y=\sqrt{2x^2+24}$
   c. $y=x^2-6x$ and $y=\sqrt{x^2-6x}$
3. a) Determine the root(s) of the equation $\sqrt{x+3}-7=0$ algebraically
   b) Use a graph to locate the x-intercept(s) of the function $f(x)=\sqrt{x+3}-7$
   c) Use you answers to describe the connection between the x-intercepts of the graph of a function and the roots of the corresponding equation.
4. Using each graph of $y=f(x)$ sketch the graph of $y=\sqrt{f(x)}$







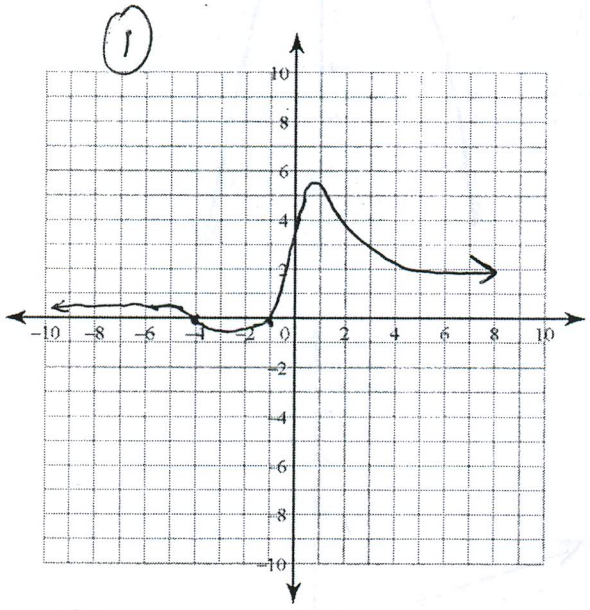
5. The speed s in m/s of water flowing out of a hole near the bottom of a tank related to the height h in meters of the water above the hole by the formula $s=\sqrt{2gh}$. In the formula g represents the acceleration due to gravity $9.8 m/s^2$. At what height is the water flowing out a speed of 9m/s?

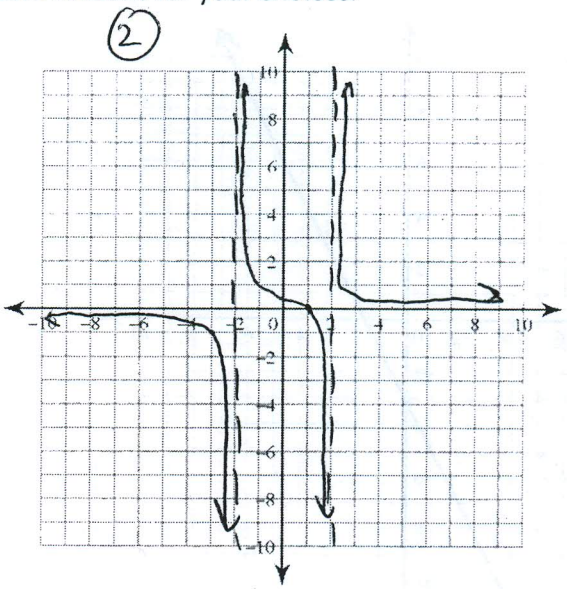
6. solve each equation algebraically
   a. $\sqrt{5x+14}=9$
   b. $7+\sqrt{8-x}=12$
   c. $23-4\sqrt{2x-10}=12$
   d. $x+3=\sqrt{18-2x^2}$
7. Graph each function and identify any asymptotes and intercepts
   a. $y= x/(x+2)$
   b. $y=(2x+5)/(x-1)$
   c. $y=(2x^2-3x-5)/(2x-5)$
8. Which rational function matched each graph? Give reasons for your choices.

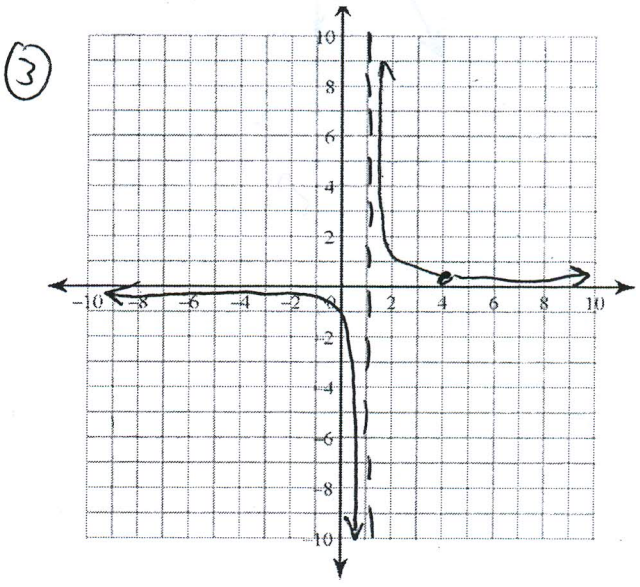
   $A(x)= (x-4)/(x^2-5x+4)$

   $B(x)= (x^2+5x+4)/(x^2+1)$

   $C(x)= (x-1)/(x^2-4)$







9. Graph and analyze each function including the behavior near any non-permissible values.
   a. $y= (x^2+2x)/(x)$
   b. $y= (x^2-16)/(x-4)$
   c. $y= (2x^2-3x-5)/(2x-5)$