1. Graph the following functions using the plotting points method. State the domain and range of the function.

    a. $f(x)=\sqrt{x}$

x	y
0	$\sqrt{0}=0$
1	$\sqrt{1}=1$
4	$\sqrt{4}=2$
9	$\sqrt{9}=3$
16	$\sqrt{16}=4$
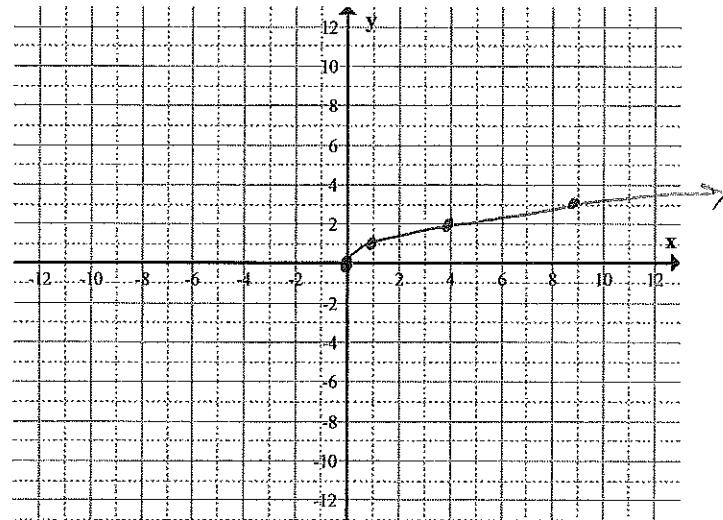
    b. $g(x)=x^3$

x	y
-2	$(-2)^3=-8$
-1	$(-1)^3=-1$
0	$0^3=0$
1	$1^3=1$
2	$2^3=8$
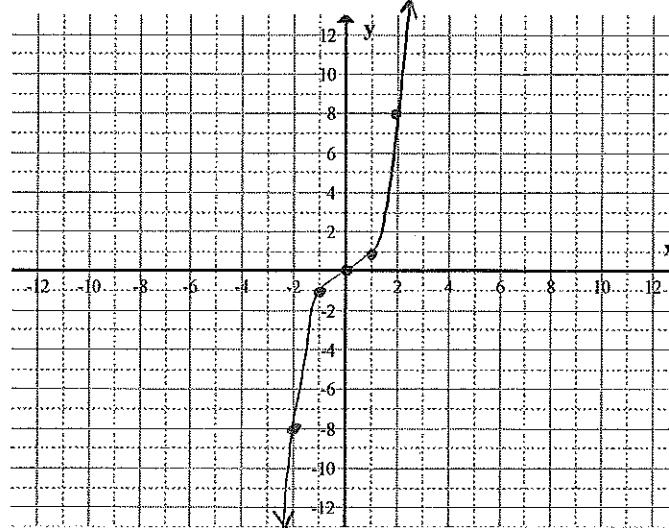
    c. $h(x)=\dfrac{1}{x}$

x	y
-2	$\frac{1}{-2}=-\frac{1}{2}$
-1	$\frac{1}{-1}=-1$
$-\frac{1}{2}$	$\frac{1}{-\frac{1}{2}}=1\div-\frac{1}{2}=1\cdot\frac{-2}{1}=-2$
$\frac{1}{2}$	$\frac{1}{\frac{1}{2}}=1\div\frac{1}{2}=1\cdot 2=2$
1	$\frac{1}{1}=1$
2	$\frac{1}{2}$
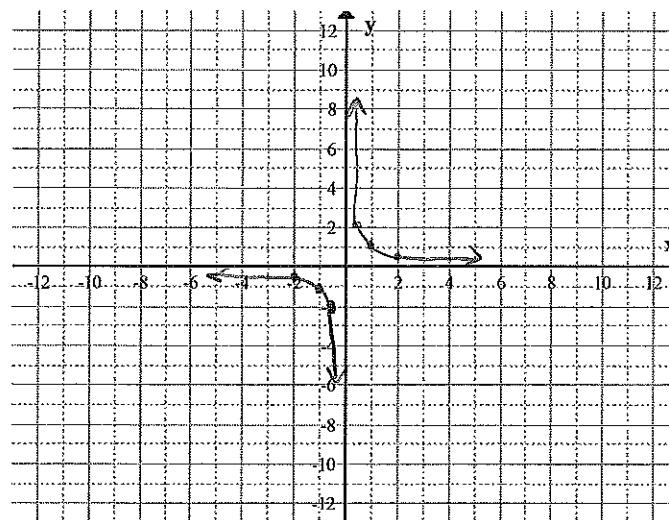
2. Evaluate the Piecewise function.

$$f(x)=\begin{cases} 2x+3 & x\leq4 \\ -x-2 & x>4 \end{cases}$$

True

a. $f(2)$ *True*

b. $f(4)$ *True*

c. $f(6)$

$=2(2)+3$
$=4+3$
$=7$

$=2(4)+3$
$=8+3$
$=11$

$-6-2$
$=-8$

3. $f(x)=\begin{cases} 2x+3 & x\leq4 \\ -x-2 & x>4 \end{cases}$

   a. Find the domain for the function

   $X\leq4$
   $X>4$

   $(-\infty,\infty)$

   $x\leq4$
   yint $x=0$
   $2(0)+3$
   $=3$
   $(0,3)$

   b. Locate any intercepts.

   X-int $y=0$
   $0=2x+3$
   $-3 \quad -3$
   $-3=2x$
   $X=\left(-\frac{3}{2}\right) \rightarrow X\leq4$
   True

   X-int $y=0$
   $\left(-\frac{3}{2},0\right)$
   $0=-x-2$
   $+2 \quad +2$
   $2=-x$
   $-2=x$

   $(-2,0)$ is not an x-int
   False
   $X>4$

   c. Graph the function.
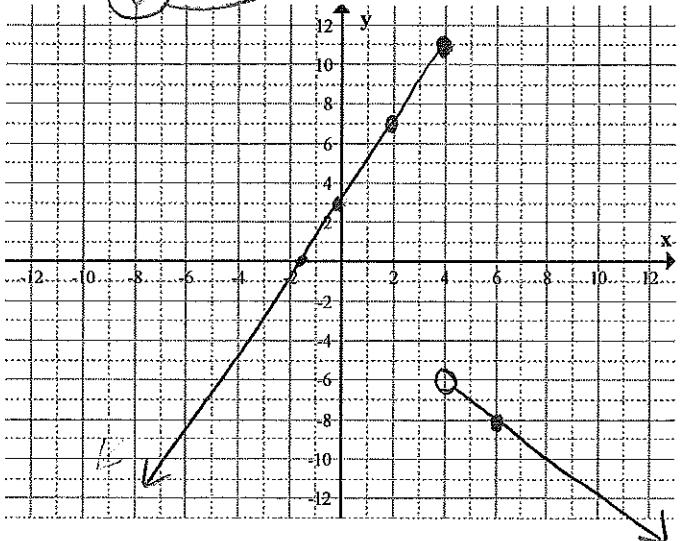
   d. Based on the graph find the range.

   $(-\infty, 11]$