

Questions

1. How many roots do the following equations have?

a. $0=x^2$ *two roots*

b. $0=8x^4+5x^3+x^2-14$ *four roots*

c. $x^3-x=5x^5+x^2$ *five roots*

2. Use the Rule of Descartes to determine how many positive and negative roots each equation has.

a. $0=x^3+4x^2-5x-3$ *one change in sign so one positive root and two times the same sign is found in succession so two negative roots*

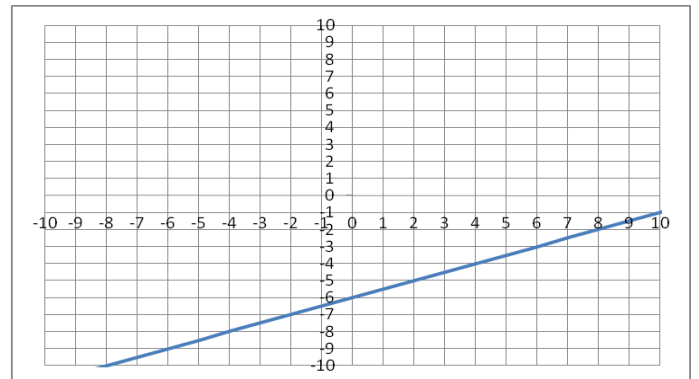
b. $0=x^2+6x+2$ *two times the same sign is found in succession so two negative roots.*

c. $0=x^6-5x^5+4x^4-3x^3+2x^2-x+6$ *six changes in sign so six positive roots.*

3. Sketch the graph of the following equation by first creating a table of values.

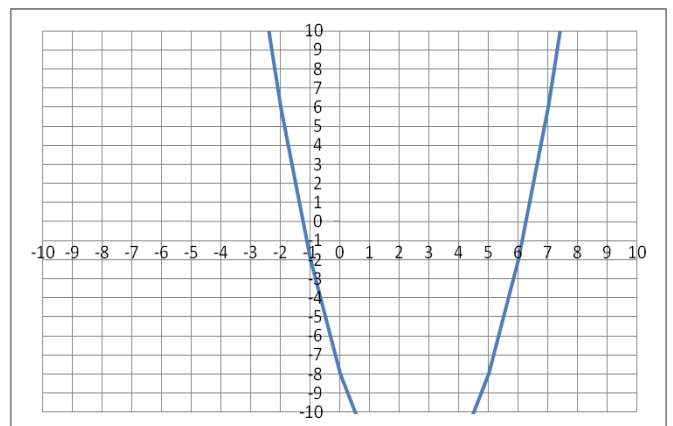
a. $y=1/2x-6$

X	y
-3	-7.5
-2	-7
-1	-6.5
0	-6
1	-5.5
2	-5
3	-4.5



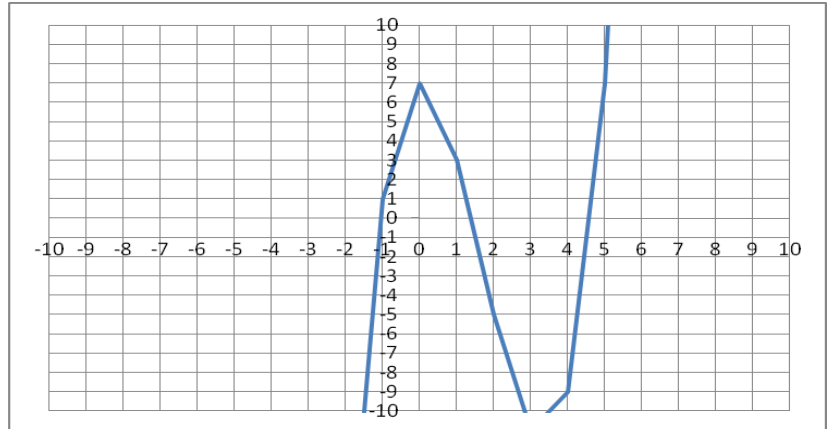
b. $y=x^2+3x-8$

X	Y
-5	2
-4	-4
-3	-8
-2	-10
-1	-10
0	-8
1	-4
2	2
3	10



c. $y=x^3-5x^2+7$

X	Y
-2	-21
-1	1
0	7
1	3
2	-5
3	-11
4	-9
5	7



4. Find the roots or the x-intercepts of the following equations by graphing.

a. $y=x^2-5x-24$

the roots are $x=8$ and $x=-3$

b. $y=x^3+8x^2+4x-48$

the roots are $x=-6$, $x=-4$ and $x=2$