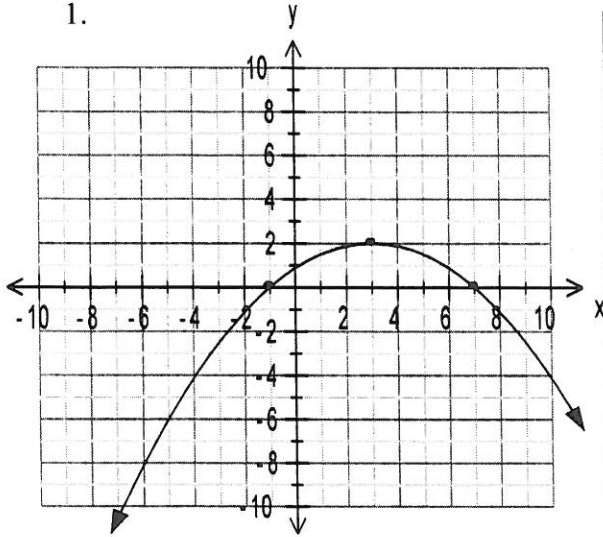


Name: Key

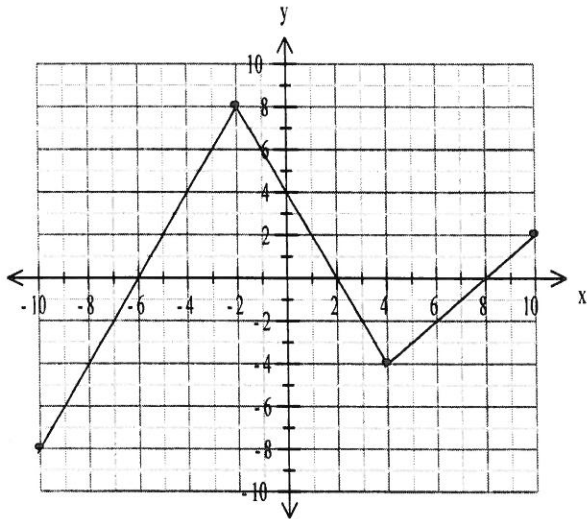
Properties of Functions Practice ☺

1.



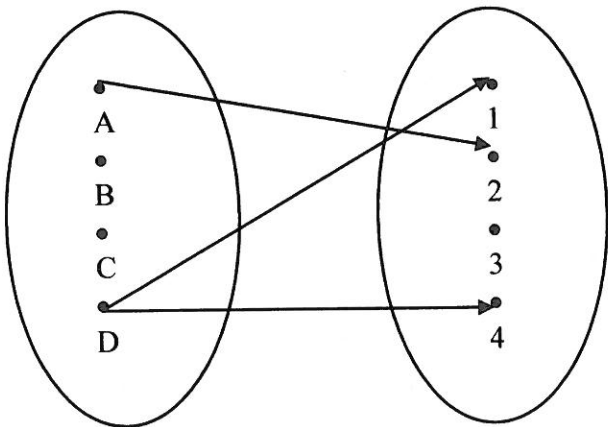
Is it a function?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (check one)
Domain:	$\mathbb{R}$
Range:	$] -\infty, 2]$
Maximum(abs/rel):	Abs: 2 Rel: none
Minimum(abs/rel):	none
Positive:	$[-1, 7]$
Negative:	$] -\infty, -1] \cup [7, \infty[$
Zeros:	$\{-1, 7\}$
Increasing:	$] -\infty, 3]$
Decreasing:	$[3, \infty[$

2.



Is it a function?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (check one)
Domain:	$[-10, 10]$
Range:	$[-8, 8]$
Maximum (abs/rel):	$\{8\}$
Minimum (abs/rel):	$\{-8\}$
Positive:	$[-6, 2] \cup [8, 10]$
Negative:	$[-10, -6] \cup [2, 8]$
Zeros:	$\{-6, 2, 8\}$
Increasing:	$[-10, -2] \cup [4, 10]$
Decreasing:	$[-2, 4]$

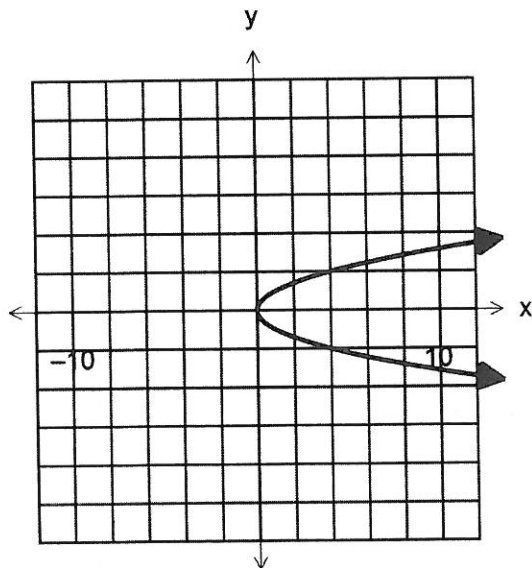
3. Indicate if the relation shown is a function or not. If so state the domain and range.



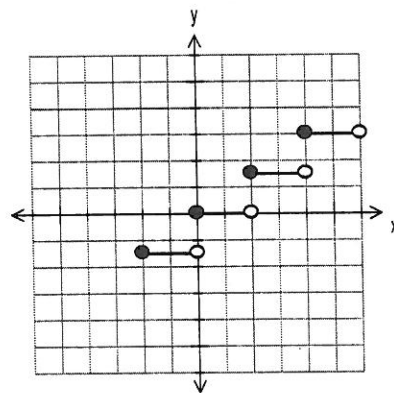
a) Yes  No  (check one)

$\{(0,0), (1,2), (3,2), (4,2)\}$

c) Yes  No  (check one)



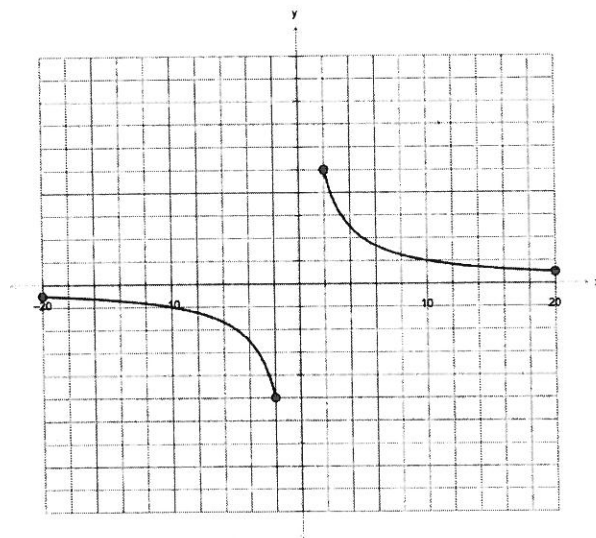
e) Yes  No  (check one)



b) Yes  No  (check one)

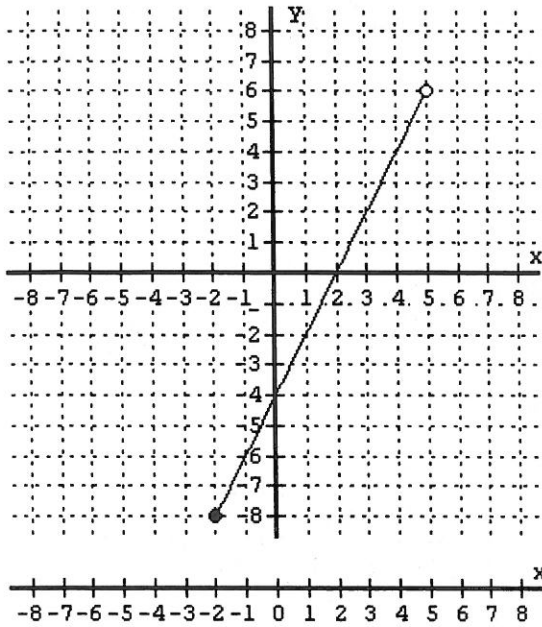
$y = -2x + 4$   $\rightarrow y = ax + b \rightarrow$   
it's a line!

d) Yes  No  (check one)



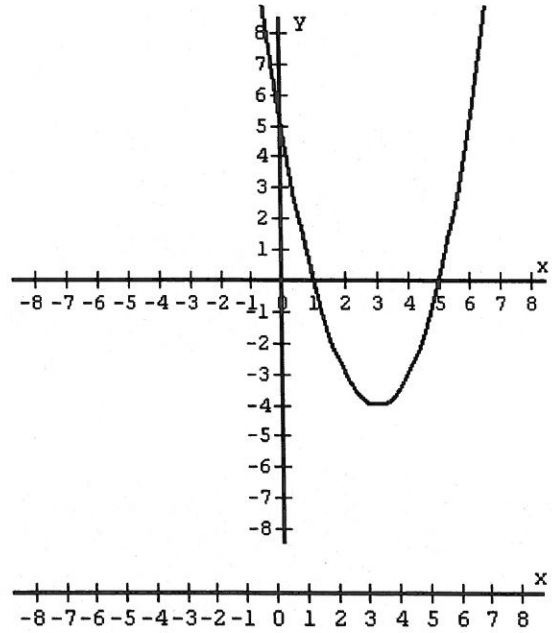
f) Yes  No  (check one)

# Examine the Graph 1



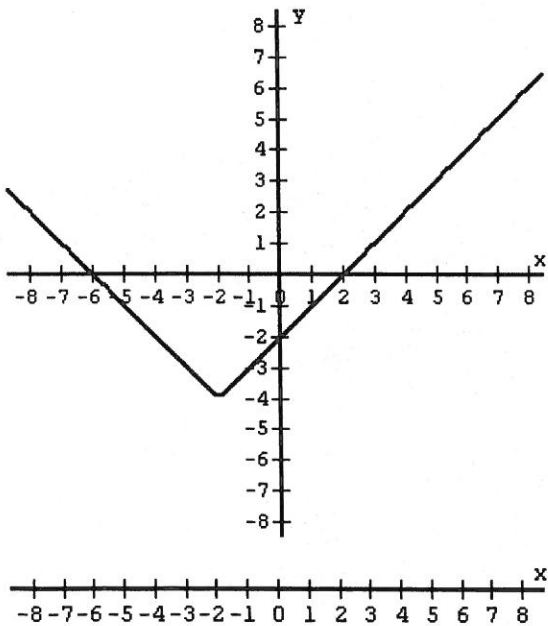
1) Where is  $f(x) \geq 0$  ?

Interval Notation  
 $[2, 5[$



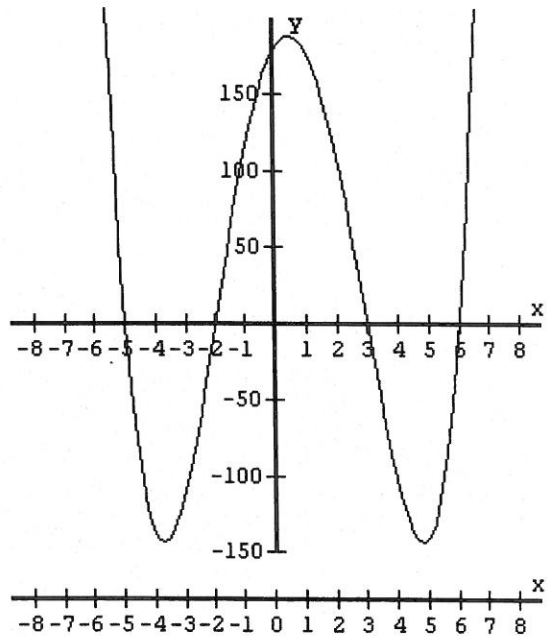
2) Where is  $f(x) \leq 0$  ?

Interval Notation  
 $[1, 5]$



3) Where is  $f(x) > 0$  ?

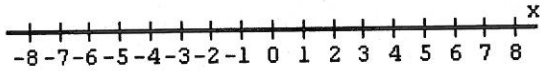
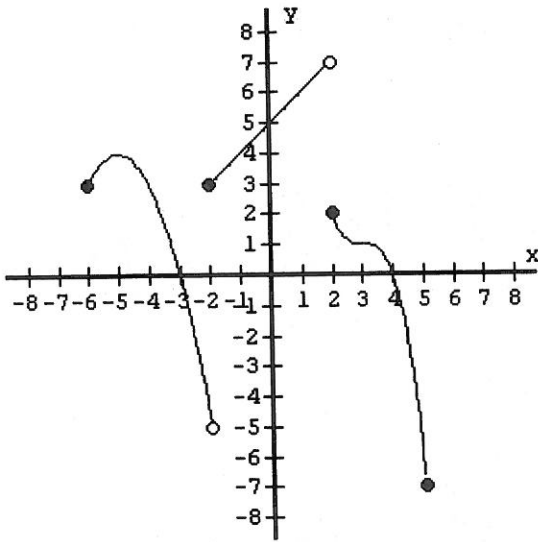
Interval Notation  
 $] -\infty, -6[ \cup ] 2, \infty [$



4) Where is  $f(x) < 0$  ?

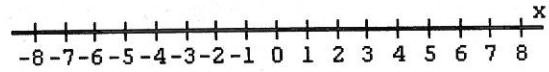
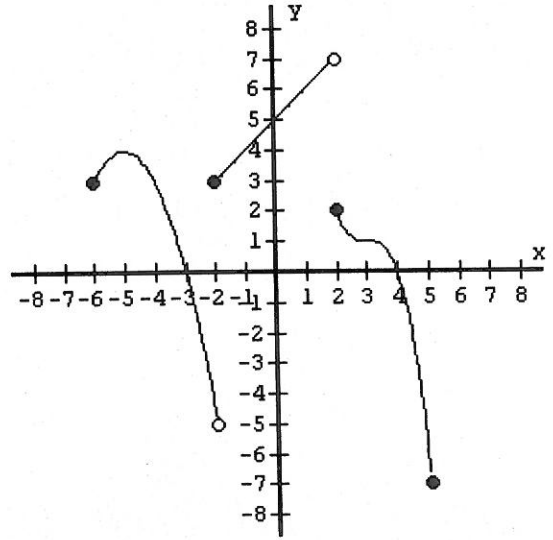
Interval Notation  
 $] -5, -2[ \cup ] 3, 6[$

## Examine the Graph 2



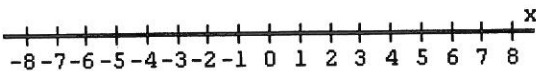
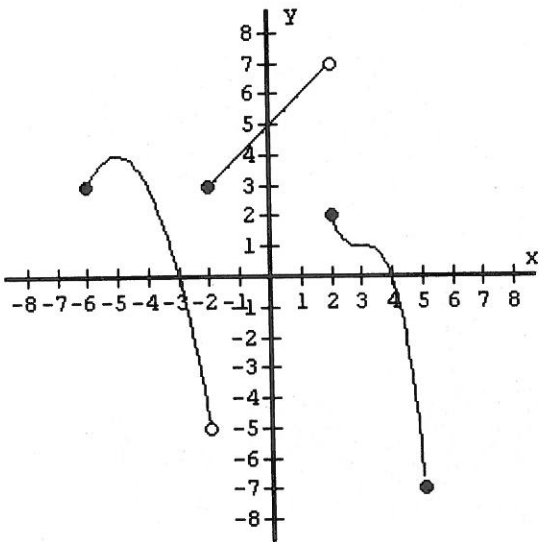
1) Where is  $f(x) > 0$  ?

Interval Notation  
 $[-6, -3[ \cup [-2, 4[$



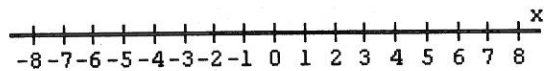
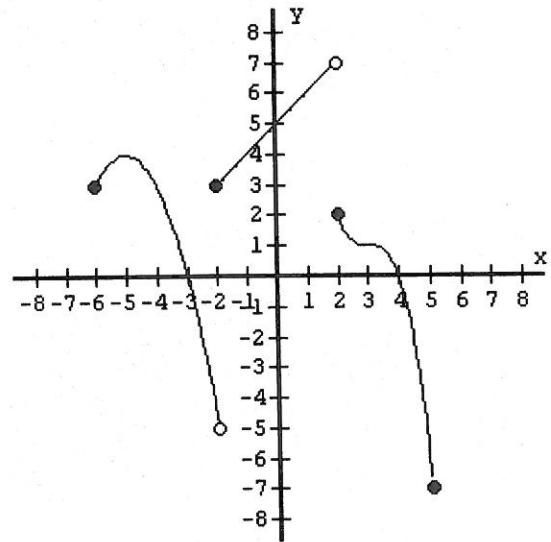
2) Where is  $f(x) \leq 0$  ?

Interval Notation  
 $[-3, -2[ \cup [4, 5]$



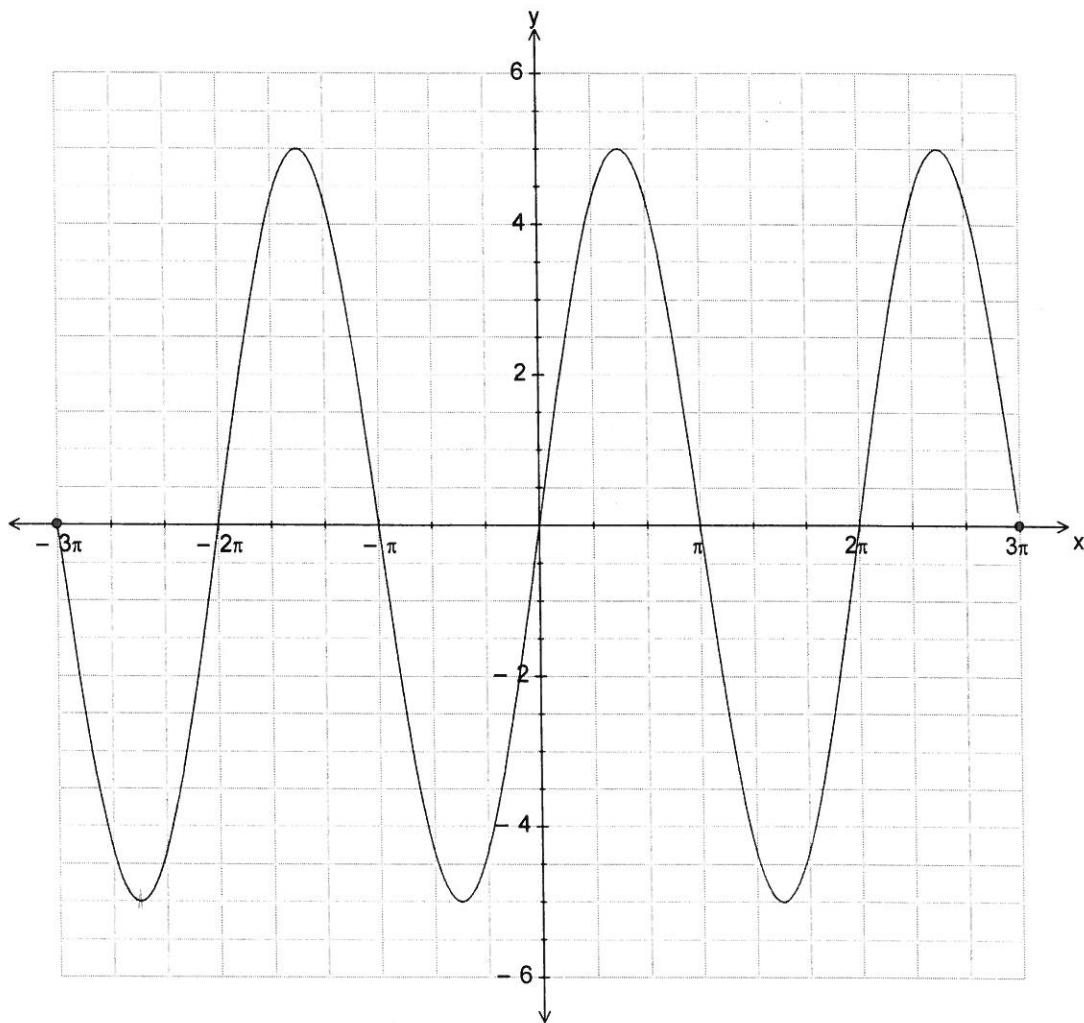
3) Where is  $f(x)$  increasing ?

Interval Notation  
 $[-6, -5] \cup [-2, 2[$

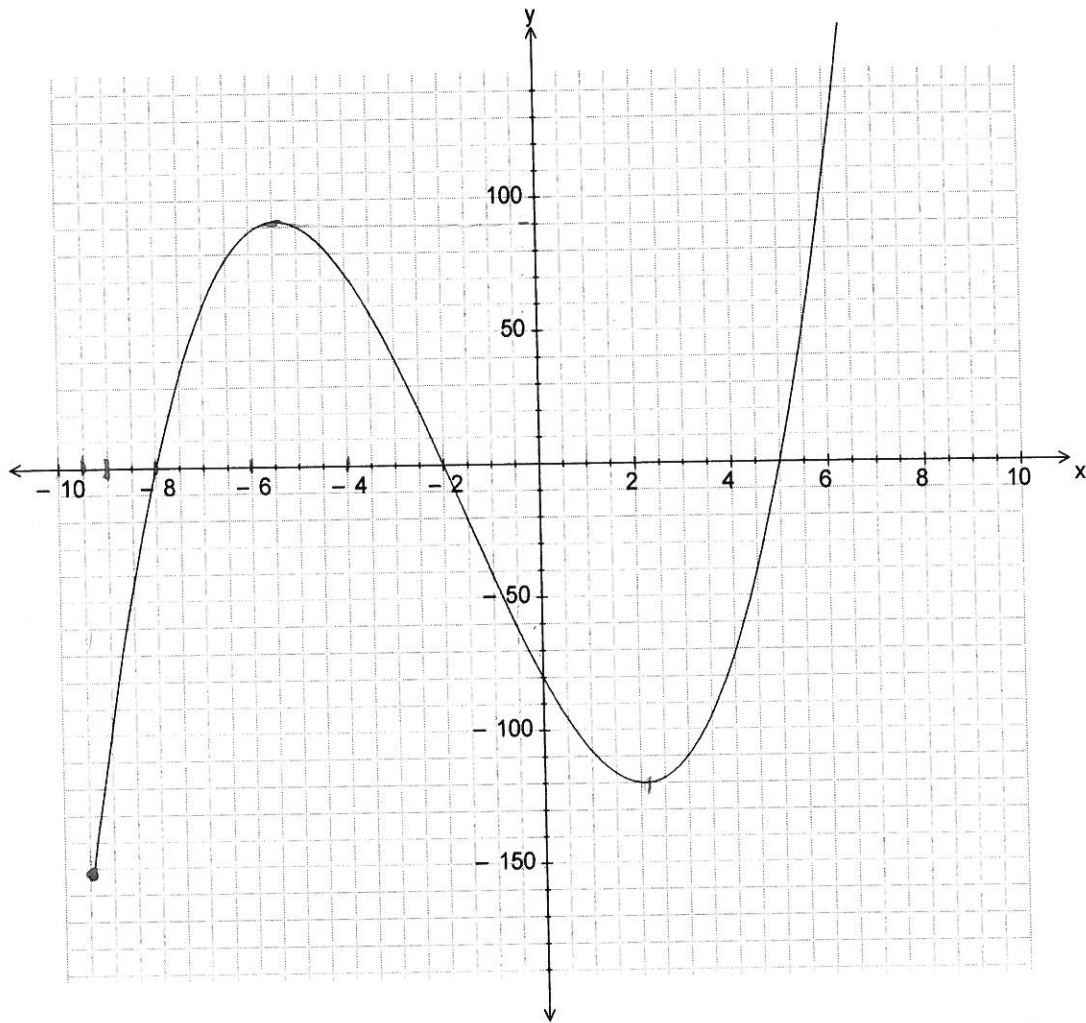


4) Where is  $f(x)$  decreasing ?

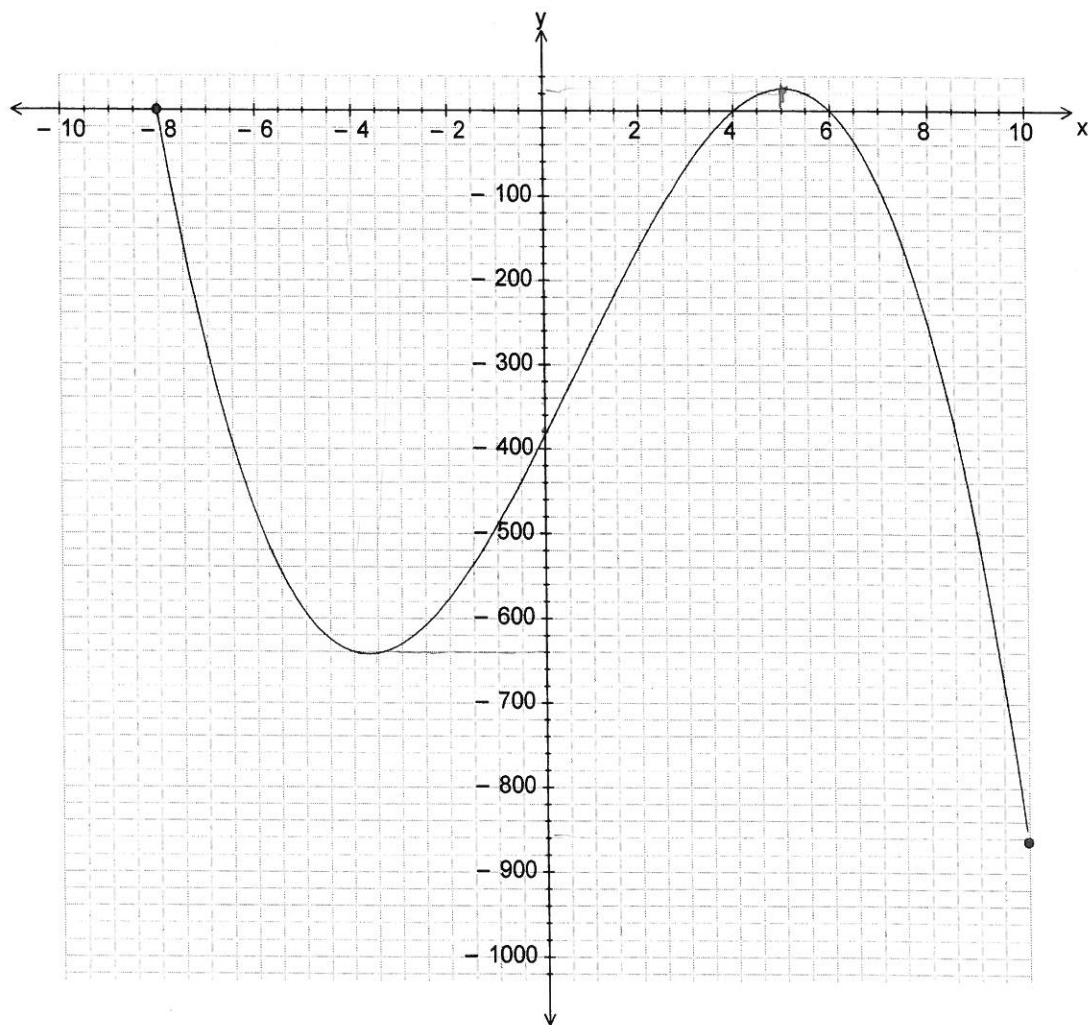
Interval Notation  
 $[-5, -2[ \cup [2, 5]$



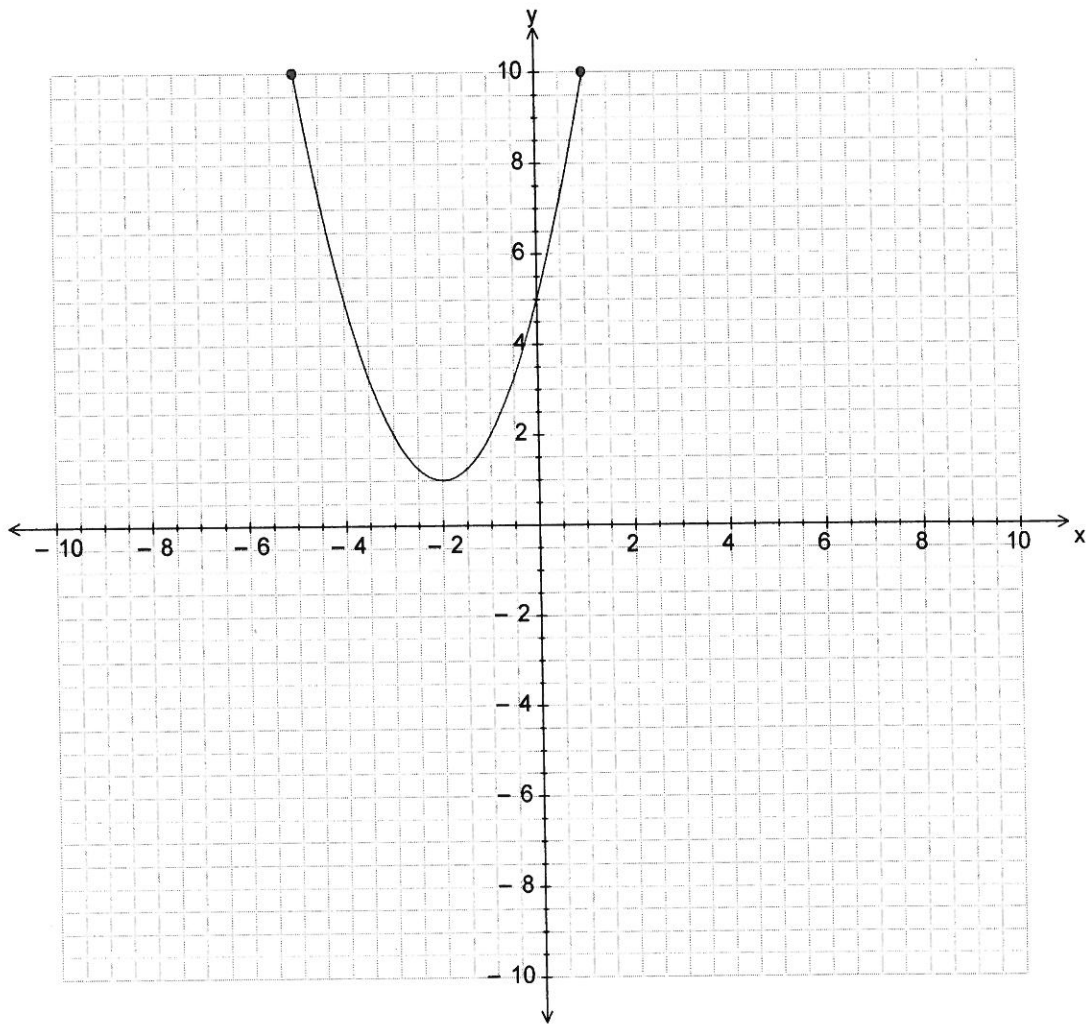
Domain:	$[-3\pi, 3\pi]$
Range:	$[-5, 5]$
Zero(s) approx.	$\{-3\pi, -2\pi, -\pi, 0, \pi, 2\pi, 3\pi\}$
Initial value	$\{0\}$
Positive	$[-2\pi, -\pi] \cup [0, \pi] \cup [2\pi, 3\pi]$
Negative	$[-3\pi, -2\pi] \cup [-\pi, 0] \cup [\pi, 2\pi]$
Absolute Max	$\{5\}$
Relative Max	$\emptyset$
Absolute Min	$\{-5\}$
Relative Min	$\emptyset$
Increasing	$[-2.5\pi, -1.5\pi] \cup [-0.5\pi, 0.5\pi] \cup [1.5\pi, 2.5\pi]$
Decreasing	$[-3\pi, -2.5\pi] \cup [-1.5\pi, -0.5\pi] \cup [0.5\pi, 1.5\pi] \cup [2.5\pi, 3\pi]$



Domain:	$[-9.5, \infty[$
Range:	$[-150, \infty[$
Zero(s) approx.	$\{-8, -2, 5\}$
Initial value	$\{-80\}$
Positive	$[-8, -2] \cup [5, \infty[$
Negative	$[-9.5, -8] \cup [-2, 5]$
Absolute Max	$\emptyset$
Relative Max	$\{90\}$
Absolute Min	$\{-150\}$
Relative Min	$\{-120\}$
Increasing	$[-9.5, -5.5] \cup [2, \infty[$
Decreasing	$[-5.5, 2]$



Domain:	$[-8, 10]$
Range:	$[-860, 20]$
Zero(s) approx.	$\{-8, 4, 6\}$
Initial value	$\{-380\}$
Positive	$[4, 6]$
Negative	$[-8, 4] \cup [6, 10]$
Absolute Max	$\{20\}$
Relative Max	$\emptyset$
Absolute Min	$\{-860\}$
Relative Min	$\{-640\}$
Increasing	$[-4, 5]$
Decreasing	$[-8, -4] \cup [5, 10]$



Domain:	$[-5, 1]$
Range:	$[1, 10]$
Zero(s) approx.	$\emptyset$
Initial value	$\{5\}$
Positive	$[-5, 1]$
Negative	$\emptyset$
Absolute Max	$\{10\}$
Relative Max	$\emptyset$
Absolute Min	$\{1\}$
Relative Min	$\emptyset$
Increasing	$[-2, 1]$
Decreasing	$[-5, -2]$