PC 1-5 Investigation/Notes

Students will identify local **maxima** and **minima** as well as the absolute maximum and minimum given a graph.

Students will identify intervals on which a function is **concave up** and **concave down**.

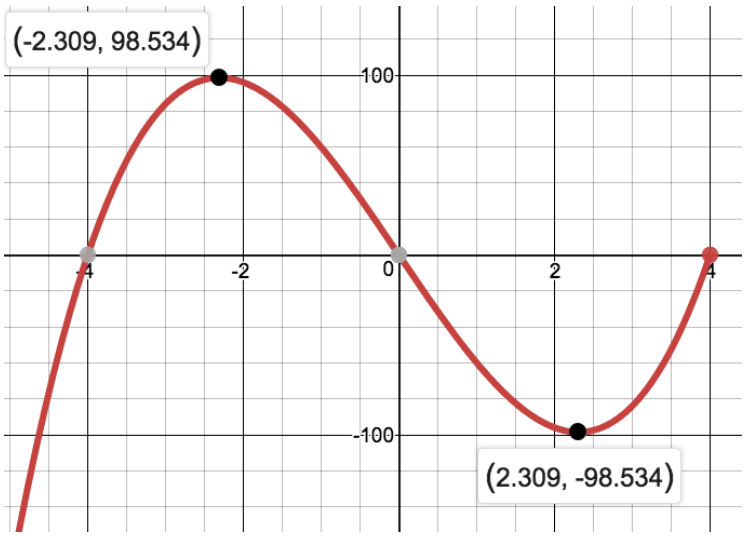
1. The graph of $g(x)$ is shown to the right.

a) At what value(s) of x, if any does the graph of f have a local maximum?

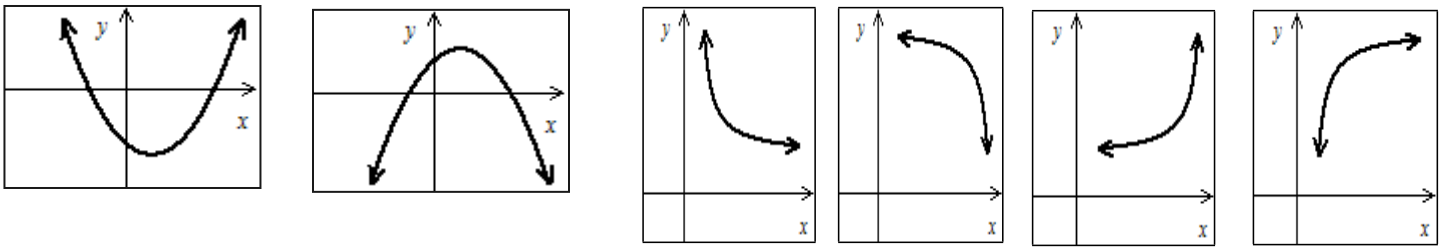
b) List the local maximum values.

c) At what value(s) of x, if any does the graph of f have a local minimum?

d) List the local minimum values.



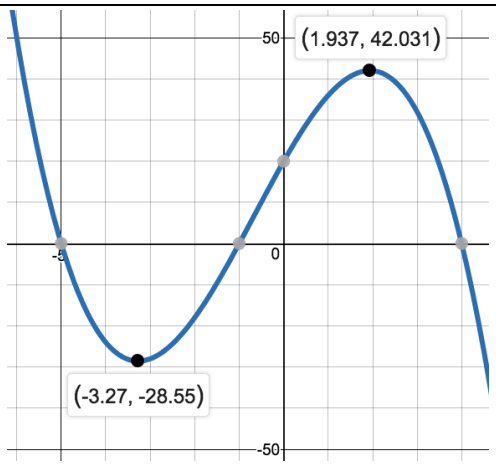
2. Decide which of the following graphs are concave up and which are concave down. Write your answer below.



3. Indicate the intervals where the graph is…

a) Concave UP

b) Concave DOWN



4. Find the domain of the function below

$$f(x) = \frac{3x + 9}{x^2 - 30}$$

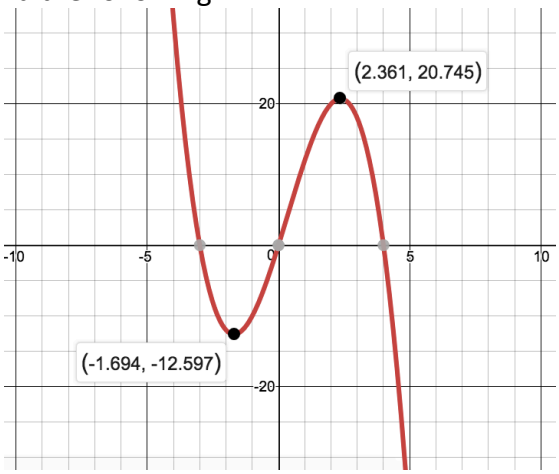
5. Is the following relation a function? Why or why not?

$$\{(2,7), (4,9), (6,7), (2,7), (8,9)\}$$

6. The graph of $f(x)$ is shown. Find the following:

a) Intervals where the graph is Concave UP

b) Intervals where the graph is Concave Down



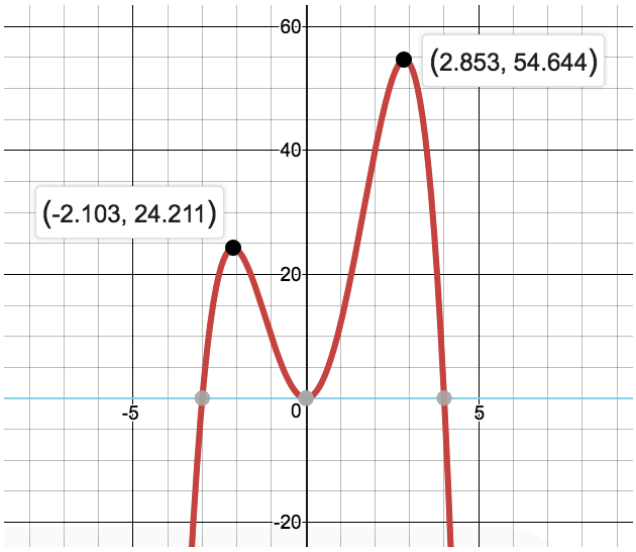
c) Evaluate $f(-2)$

d) Solve $f(x) = 15$ (approximate to 2 decimals)

7. Determine the following given the graph.

a) Intervals for Increasing/Decreasing

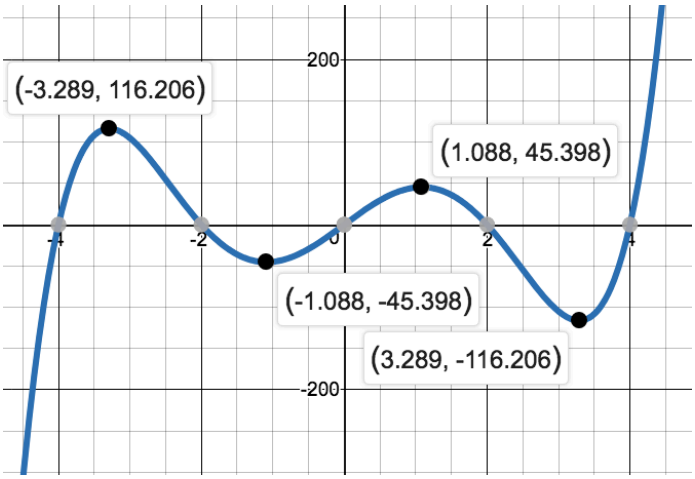
b) Intervals for Concave Up/Concave Down



8. Determine the following given the graph.

a) Intervals for Increasing/Decreasing

b) Intervals for Concave Up/Concave Down

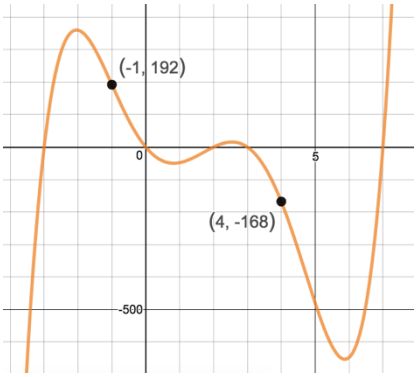


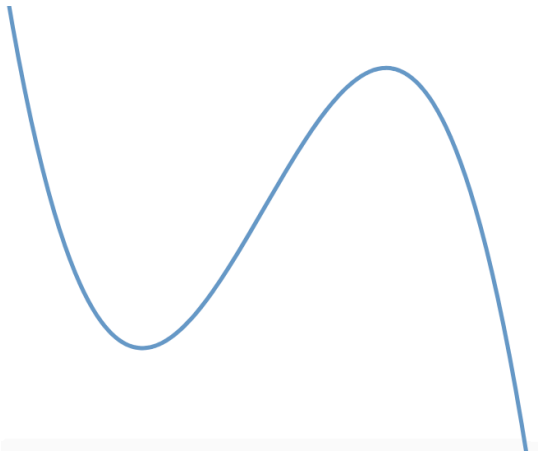
9. The graph of $g(x)$ is shown. Determine the following:

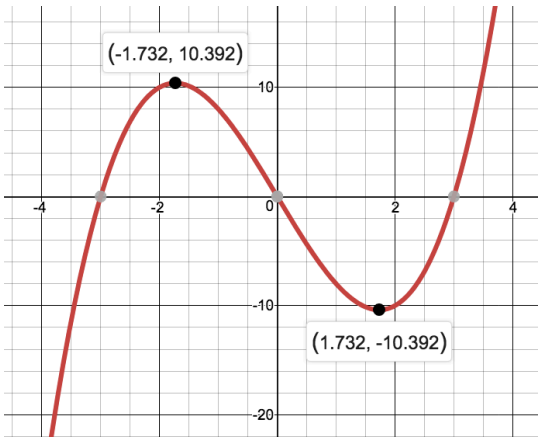
a) $g(-1)$

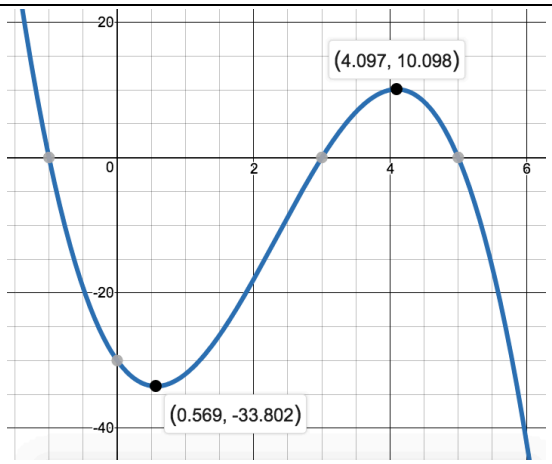
b) $g(4)$

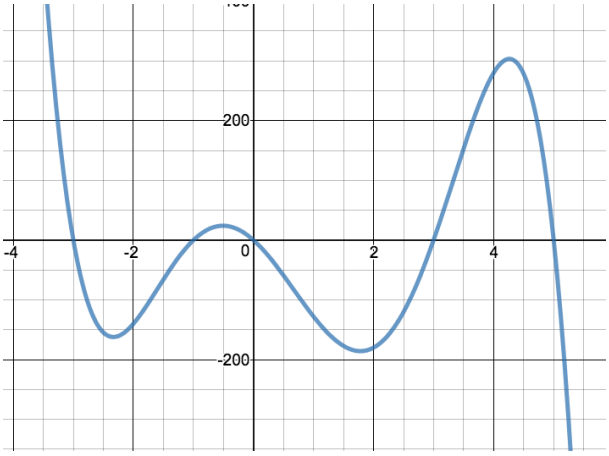
c) How many solutions does $g(x) = 0$ have?

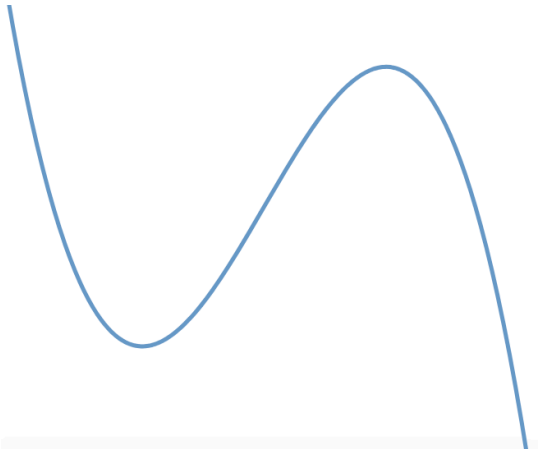


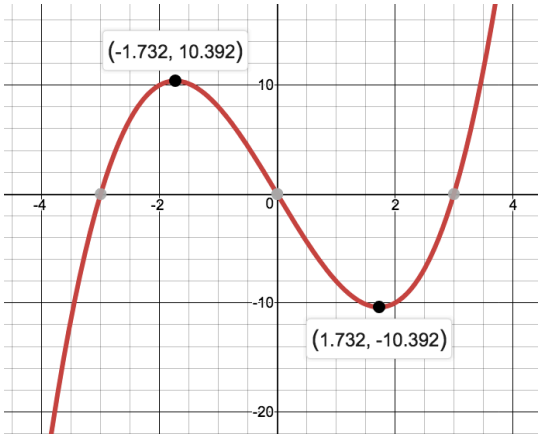



(-1.732, 10.392)
(1.732, -10.392)


(4.097, 10.098)
(0.569, -33.802)



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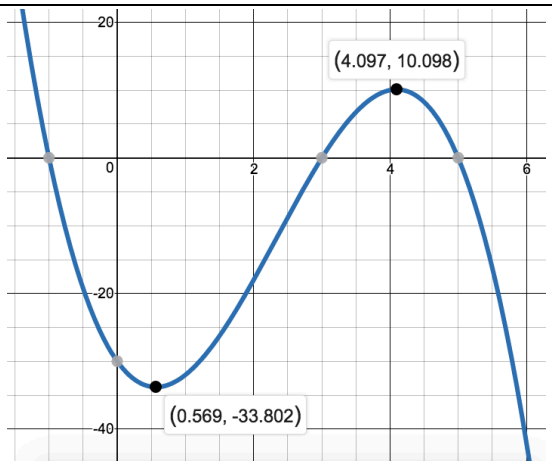
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