Math G180
Blank Lecture Notes
Chapter 4 – Sections 4.3 and 4.5

Graphing Steps

Sketch the graph of $f(x) = x^3 - 9x$ using the following guidelines:

a) Domain:

b) Intercepts:

c) Asymptotes:

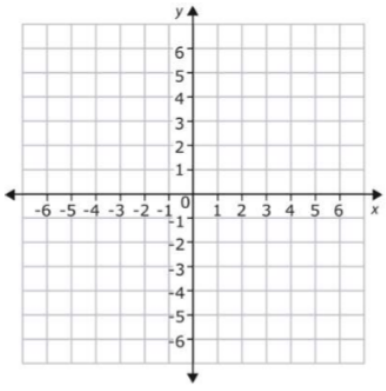
d) Increasing and decreasing intervals:

e) Local Maximum and Minimum Points (and Values):

f) Concave up and concave down intervals:

g) Inflection points:

h) Graph:



Sketch the graph of $f(x) = x^3 - 4x$ using the following guidelines:

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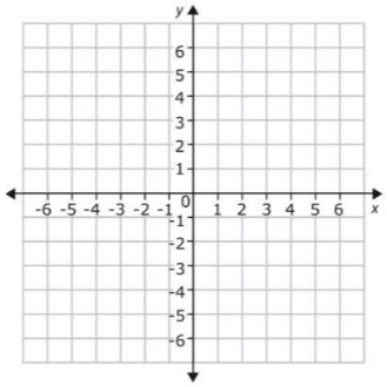

For the following exercises, find the local and absolute minima and maxima for the functions over $(-\infty, \infty)$.

129. $y = x^2 + 4x + 5$

130. $y = x^3 - 12x$

131. $y = 3x^4 + 8x^3 - 18x^2$

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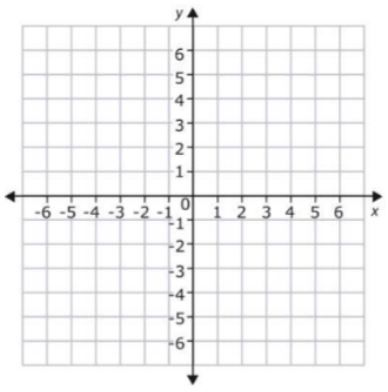

1

For the following exercises, determine

a. intervals where f is increasing or decreasing,

b. local minima and maxima of f,

c. intervals where f is concave up and concave down, and

d. the inflection points of f.

224. $f(x) = x^2 - 6x$

225. $f(x) = x^3 - 6x^2$

226. $f(x) = x^4 - 6x^3$

227. $f(x) = x^{11} - 6x^{10}$

228. $f(x) = x + x^2 - x^3$

229. $f(x) = x^2 + x + 1$

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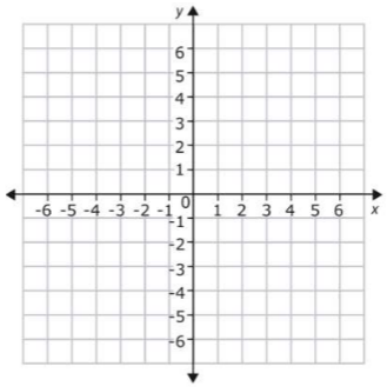

2

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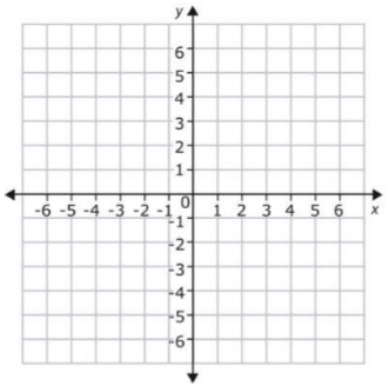

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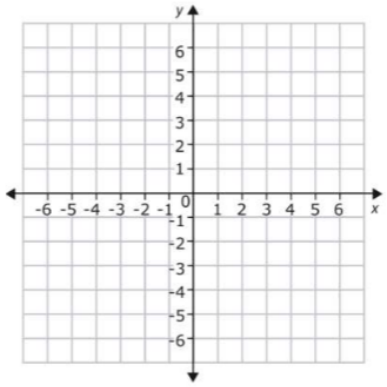

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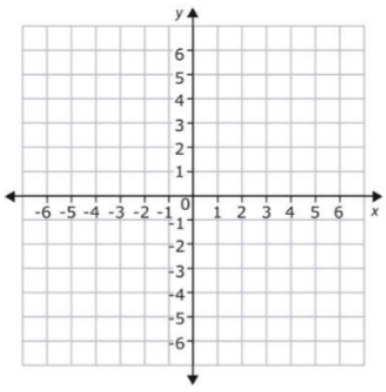

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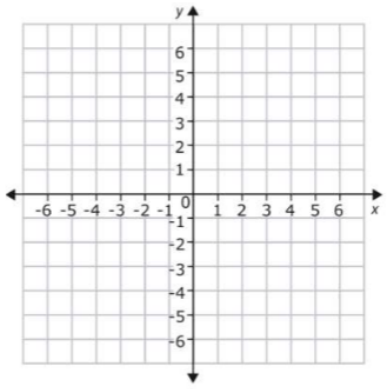

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