MTH 30 Quiz 8: Polynomial Functions and Their Graphs

You can print out this pdf file and work on it or you can copy the steps into your notebook and do all the work there. When finished, scan your work into a pdf file or take pictures of all the pages (make sure to have a good quality of the picture: the text must be readable) and send it to this email address: natna20@gmail.com only. You must show all your work to get full credit!

Consider the following polynomial function: $f(x)=2x^4+3x^3-11x^2-9x+15$

1. Find its ***end-behavior*** (show all your work):

degree of *f(x)* =

leading coefficient of *f(x)* =

Hence, the end-behavior of the graph of *f(x)* is:

2. Find ***y-intercept*** of the graph of f(x):

To find the *y-intercept* of the graph of *f(x)* we set **x =**

and find **f(___) =**

Hence, point **(,)** is the ***y-intercept*** of the graph of *f(x)*.

3. Let's list all the possible rational zeros of *f(x)*:

We find it by listing $\dfrac{all\,factors\,of\,......}{all\,factors\,of\,......}=$

4. Begin testing the possible rational zeros of f(x) that you found in step 3.
As soon as you find a zero, stop, do not test the other possible rational zeros.
Instead, perform the long or synthetic division, use the result of the division, the quotient, in step 5.
Show all your work!

State the *zero* you found:

State the quotient you received from the division:

5. Is step 4 you should have received a polynomial of degree 3, with four terms. Use grouping method to find its *zeros*. Show all your work!

6. State the multiplicity of all ***zeros*** you found (there should be 4 of them):

What can you say about the behavior of the graph near these zeros (*x-intercepts*)?

7. What is the most number of the turning points of the graph?

8. Is the function f(x) odd/even/neither? Show all your work!

8. Sketch the graph of f(x) using all the information you found in steps 1-7 only: