Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_FA/SA Polynomial Behavior & GC Usage ALPHA Hour\_\_\_\_\_\_\_\_

$$f\left(x\right)=-2x^{4}+10x^{3}+16x^{2}-24x$$

LABEL the SKETCH with COORDINATES for ROOTS, Y intercept, and EXTREMES

|  |  |
| --- | --- |
|  | * State a viewing window that will allow you to see all important features of this function.

 x min \_\_\_\_\_ x max \_\_\_\_\_\_  y min \_\_\_\_\_ y max \_\_\_\_\_\_* State the range using bracket notation.
* State any GLOBAL Extreme(s) as a point
* State the local extremes of this polynomial as coordinates
 |
|  Since you are dealing with a quartic polynomial and they are very difficult to deal with for many reasons, your mathematics teacher felt that giving you two of the roots of this polynomial would be helpful in allowing to do some restructiing of the factorable quartic polynomial .* Given that x = 1 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that x = 2 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that both x = 1 and x = 2 are roots of this quartic polynomial, use synthetic division to factor this quartic polynomial COMPLETELY
 |

**EC 1: If you are signed up for AP Central by the end of today’s GREEN WHITE Game you will receive an extra credit point!**

$$f\left(x\right)=-2x^{4}+10x^{3}+16x^{2}-24x$$

|  |  |
| --- | --- |
| Sketch on this graph ONLY the positive portion of f(x) labeling the important points within that domain x values that generate positive f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are positive.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are negative.
 |
| Sketch on this graph ONLY the decreasing values of f(x) labeling the important points within that domain x values that generate decreasing f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are decreasing.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* Repeat the above task using inequalities and compound inequalities
 |

**EC 2: What is your favorite part of fall and why?**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_FA/SA Polynomial Behavior & GC Usage BETA Hour\_\_\_\_\_\_\_\_

$$f\left(x\right)=4x^{4}+40x^{3}+28x^{2}-72x$$

LABEL the SKETCH with COORDINATES for ROOTS, Y intercept, and EXTREMES

|  |  |
| --- | --- |
|  | * State a viewing window that will allow you to see all important features of this function.

 x min \_\_\_\_\_ x max \_\_\_\_\_\_  y min \_\_\_\_\_ y max \_\_\_\_\_\_* State the range using bracket notation.
* State any GLOBAL Extreme(s) as a point
* State the local extremes of this polynomial as coordinates
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* Given that x = 2 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that both x = 1 and x = 2 are roots of this quartic polynomial, use synthetic division to factor this quartic polynomial COMPLETELY
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$$f\left(x\right)=4x^{4}+40x^{3}+28x^{2}-72x$$

|  |  |
| --- | --- |
| Sketch on this graph ONLY the positive portion of f(x) labeling the important points within that domain x values that generate positive f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are positive.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are negative.
 |
| Sketch on this graph ONLY the decreasing values of f(x) labeling the important points within that domain x values that generate decreasing f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are decreasing.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are increasing.
 |

**EC 2: What is your favorite part of fall and why?**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_FA/SA Polynomial Behavior & GC Usage GAMMA Hour\_\_\_\_\_

$$f\left(x\right)=-3x^{4}-12x^{3}-21x^{2}+30x$$

LABEL the SKETCH with COORDINATES for ROOTS, Y intercept, and EXTREMES

|  |  |
| --- | --- |
|  | * State a viewing window that will allow you to see all important features of this function.

 x min \_\_\_\_\_ x max \_\_\_\_\_\_  y min \_\_\_\_\_ y max \_\_\_\_\_\_* State the range using bracket notation.
* State any GLOBAL Extreme(s) as a point
* State the local extremes of this polynomial as coordinates
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|  Since you are dealing with a quartic polynomial and they are very difficult to deal with for many reasons, your mathematics teacher felt that giving you two of the roots of this polynomial would be helpful in allowing to do some restructiing of the factorable quartic polynomial .* Given that x = 1 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that x = 2 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that both x = 1 and x = 2 are roots of this quartic polynomial, use synthetic division to factor this quartic polynomial COMPLETELY
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$$f\left(x\right)=-3x^{4}-12x^{3}-21x^{2}+30x$$

|  |  |
| --- | --- |
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Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are increasing.
 |

**EC 2: What is your favorite part of fall and why?**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_FA/SA Polynomial Behavior & GC Usage DELTA Hour\_\_\_\_\_\_\_\_

$$f\left(x\right)=5x^{4}+40x^{3}+25x^{2}-70x$$

LABEL the SKETCH with COORDINATES for ROOTS, Y intercept, and EXTREMES

|  |  |
| --- | --- |
|  | * State a viewing window that will allow you to see all important features of this function.

 x min \_\_\_\_\_ x max \_\_\_\_\_\_  y min \_\_\_\_\_ y max \_\_\_\_\_\_* State the range using bracket notation.
* State any GLOBAL Extreme(s) as a point
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* Given that x = 2 is a root of this quartic polynomial, use synthetic division to factor this quartic polynomial
* Given that both x = 1 and x = 2 are roots of this quartic polynomial, use synthetic division to factor this quartic polynomial COMPLETELY
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$$f\left(x\right)=5x^{4}+40x^{3}+25x^{2}-70x$$

|  |  |
| --- | --- |
| Sketch on this graph ONLY the positive portion of f(x) labeling the important points within that domain x values that generate positive f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are positive.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are negative.
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| Sketch on this graph ONLY the decreasing values of f(x) labeling the important points within that domain x values that generate decreasing f(x) values. | * BE careful and use set notation to state the x values that guarantee that for function values are increasing.

Note: [ , ] , ( , ] ( , ) and [ , ) are brackets that can be used to describe the behavior of f(x) in terms of x* BE careful and use inequalities to state the x values that guarantee that for function values are increasing.
 |

**EC 2: What is your favorite part of fall and why?**