Name: _____ Date: _____ Per: ___

Summer Work

For this class you will be receiving summer work in the form of interactive, online videos. You will not be graded on the accuracy of your answer to the question but you will be graded on the content of your answer. Each answer should be at least three sentences and contain your reasoning.

Here is an example of what I am looking for:

I think that the squirrel is going to win the race. Even though the badger is riding a bike, the squirrel is traveling down a straight path whereas the badger is traveling a windy path. This means that the squirrel is traveling a shorter distance so the squirrel will probably win the race.

The questions must be answered in order.

Section 1: Pixel Pattern

Part 1

Take a look at the pattern in the video below:

https://www.youtube.com/watch?v=P-V4cPVPSb4&feature=youtu.be

When will the pixel pattern break through the box? After how many seconds? Will it break through the top, the sides, or the corner? Take a guess and support your answer.

Part 2

Look at the information in the following album: http://imgur.com/a/9rOv4

Using the actual measurements, how long, exactly, would it take for the pattern to break out of the box? Give specific calculations to back up your answer.

Part 3

Watch this video to see the solution to the problem: https://youtu.be/PtIZjHGmte4

What is the ratio of the width to the height of the design at the moment the pattern breaks through the box?

Section 2 Circle and Square

Part 1

Watch the following video: https://youtu.be/BRe0J9NKkr8
What's even happening in the video? How are the square and the circle changing? What controls their change?

Part 2

Watch the following video: https://youtu.be/NrRYTkhYeR0
Guess where the circle and the square have equal area. What's a number you know is too high? What's a number you know is too low? What is your actual guess?

Part 3

Watch the following video: https://youtu.be/hUjs3543jaU
How would the problem change if it was a circle and a triangle? Would the point where their areas are equal be the same? Would it be more to the right? More to the left? Be sure to justify your answer.

Section 3: Ferris Wheel

Part 1

Watch the following video: https://youtu.be/ZawKC3a12Lc
How many complete spins do you think the red car on the Ferris wheel will make?

Part 2

What is the total distance the Ferris wheel will travel over the 3 minutes? Be sure to explain your answer and all work you did to arrive at your answer.

Part 3

Watch the following video: https://youtu.be/ewmQCp-2ZKo
How long should the ride be to make sure that the red car ends up at the bottom? What are one or two others ride lengths that ensure the red car ends up at the bottom? Explain your reasoning.

Section 4: Pizza Doubler

Part 1

Look at the following image: http://i.imgur.com/cGDulJW.jpg
If you would like the most pizza possible which coupon would you use? The coupon that doubles the sector angle (central angle) or the coupon that doubles the radius of the pizza? Provide reasons to support your answer.

Part 2

Look at the following image: http://i.imgur.com/tTii3Dn.png
Given the size of the pizza from the image above do some calculations to show which coupon would give you more pizza. Assume that the pizza in the original image was one slice. Show all calculations and provide an explanation.

Part 3

Would the best coupon for the slice above work for all slices or just some slices? Tell me under what circumstances I should use one coupon or the other.

Section 5: Rotonda West, FL

Part 1

Look at the following image: http://i.imgur.com/HcnWzIu.jpg
Which do you think is the shortest path? Why? Provide an explanation as to why you think it is the shortest route.

Part 2

Look at the following picture: http://i.imgur.com/IhYFnF9.jpg
What is the full circumference of the circle? What would half the circle's circumference be? Does this change your answer?

Part 3

Watch the following video: https://youtu.be/6mQG0ZZ4adQ
Was your choice correct? What is something you could do to make the cars arrive at the same time?