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| **8.12 Area and Perimeter Application Task: Part I** |
| 1. Use the graph paper provided (split into 4 coordinate planes) to explore the relationship between dilation, perimeter, and area.   In the first coordinate plane, graph a square with the perimeter of 4 units and an area of 1 square unit.   1. Now, dilate the square by a scale factor of 2 (k=2) and graph on the same coordinate plane. What is the new perimeter and new area of the square? 2. Now graph all new squares on the same coordinate plane after a dilation of k=3, k=4, k=5, and k=6 and fill in the following table.  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  | **Original Figure** | **k =** | **k=** | **k=** | **k=5** | **k=6** | | **Perimeter** | 4 units |  |  |  |  |  | | **Area** | 1 square unit |  |  |  |  |  |   \*Extra Credit Prediction for +2: If any figure has a perimeter *p* and an area *a*, and it is dilated by a scale factor *k*, what will be the **new** perimeter and **new** area of its image? |
| **8.12 Area and Perimeter Application Task: Part II**  \**you may need to use the distance formula to get the lengths on a coordinate plane!\** |
| 1. On the second coordinate plane, graph a triangle with the vertices at A(0,3), B(4,0) and C(0,0). What is the perimeter and area of this triangle?  2. Now, dilate the triangle by a scale factor of 2 (k=2). What is the new perimeter and new area of the triangle? |
| 1. On the third coordinate plane, graph a parallelogram with the vertices at A(0,0), B(1,3), C(4,3) and D(3,0). What is the perimeter and area of this parallelogram? *Hint – one way to find area is by breaking the bigger shape into smaller shapes you do know the area of.*  2. Now, dilate the parallelogram by a scale factor of 2 (k=2). What is the new perimeter and new area of the parallelogram? |
| **EXTRA CREDIT +10 HW points (*you will only receive the extra credit for a unique figure that no one else in the class has)***  1. On the fourth coordinate plane, graph another figure (can’t be a square, rectangle, parallelogram, or triangle!). What is the perimeter and area of your figure?  2. Now, dilate your figure by a scale factor of 2 (k=2). What is the new perimeter and new area of the parallelogram? |