**Taxicab Geometry – Explorations**

Explore answers to the following questions. You don’t need to answer these questions in order. Pick the question which intrigues you most, and start there.

1. What formula could we use to find the taxicab distance, *d*T, between two points (*x*1, *y*1) and (*x*2, *y*2) on a taxicab coordinate grid?

2. How many different line segments can be drawn between two points whose taxicab distance *d*T is 4 units?

3. How many different line segments can be drawn between two points whose taxicab distance is *d*T?

4. Experiment with circles of varying radii on a taxicab coordinate system. Write a conjecture about the value of π in taxicab geometry.

5. Is it possible to draw a perpendicular bisector in a taxicab coordinate system for each pair of points?

(–2, 0) and (–6, –4)

(5, –2) and (–3, 3)

(5, –2) and (2, –1)

(6, –2) and (–1, 1)

6. Under which conditions will a pair of points have a perpendicular bisector? Make a conjecture about when a perpendicular bisector exists.