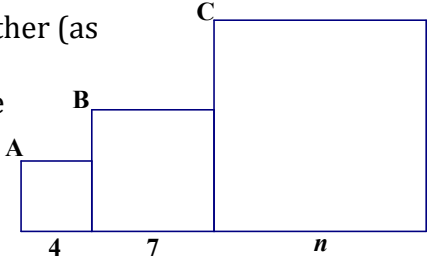Carmel Schettino cschettino@deerfield.edu
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Using Problem-Based Learning to Engage High School Students

1. On a number line where is (p+q)/2 in relation to p and q?

2. A clock takes 3 seconds to chime at 3:00 pm, how long does it take at 6:00 pm?

3. To the nearest tenth of a degree, how large are the acute angles of an isosceles triangle that is as tall as it is wide?

4. Given regular hexagon BAGELS, show that SEA is an equilateral triangle.

5. If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram. What about the converse of this statement?

6. The diagonals of a parallelogram always bisect each other. What about the diagonals of a trapezoid? Explain your answer.

7. A river runs along the line $x = 3$ and a dog is tied to post at the point D= (10,5). If the dog's leash is 25 units long (the same units as the coordinates), and if a fence were going to be placed at the edge of the river along $x = 3$, name the two coordinates along the river where it would be safe for the fence to end so that the dog could not fall in the river.

8. Three square buildings are built directly next to each other (as shown) in a city. The vertices *A*, *B*, and *C* are *collinear*. *Collinear* means that those three points are on the same line. Find the dimension *n*, the width of the third building.

9. An airplane is flying at 36000 feet directly above Lincoln, Nebraska. A little later the plane is flying at 28000 feet directly above Des Moines, Iowa, which is 160 miles from Lincoln. Assuming a constant rate of descent, predict how far from Des Moines the airplane will be when it lands.