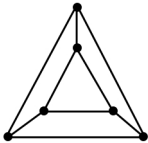
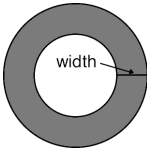


The Mandelbrot Competition

Round Three Test

Name: _____

Time Limit:
40 minutes

1. Neeyanth, Veer and Joshua throw a Frisbee to one another without dropping it. After a few moments Neeyanth has made 10 catches and 9 throws, Veer has made 8 catches and 8 throws, while Joshua has made 7 throws and 6 catches. Who has the Frisbee at this point?		1
2. A certain sequence of 99 numbers begins with 100 and ends with 2014. If each term of the sequence after the first is larger than the previous term by the same amount, then what is the value of the middle term?		1
3. In the diagram at right, how many ways are there to color two of the dots red, two of the dots blue, and two of the dots green so that dots of the same color are joined by a segment?		2
4. A pair of concentric circles create a ring-shaped region with shaded area 20π and total boundary (counting both the inside and outside circles) of 14π . What is the width of the ring?		2
5. Stuart asks Shivani, “What is your favorite integer?” She replies, “If you multiply one more than my favorite integer by 14 and subtract our classroom number, you get the square of my integer.” If this is enough information for Stuart to deduce Shivani’s integer, then what is their classroom number?		2
6. There is a power of 2 whose final five digits are each either 3 or 6. What are these final five digits, in order?		3
7. Given points $A(0, 0)$, $B(20, 14)$ and $C(30, -8)$, find the equation of the line l with positive slope such that the perpendicular distances from each of A , B and C to l is the same.		3

SCORE: