| Circle Pattern | Rubric |  |
| :---: | :---: | :---: |
|  | Points | Section points |
| 1. Gives correct explanation such as: <br> Let radius white circle be r , then area $=\pi r^{2}$ Radius black circle is 2 r , then area $=4 \pi \mathrm{r}^{2}$ Area of two white circles is $2 \pi \mathrm{r}^{2}$ <br> Partial credit <br> May use numbers rather than variables | $2$ <br> (1) | 2 |
| 2. Gives correct answer: 3/4 | 2 | 2 |
| 3. Gives correct answers: $\mathbf{3 / 4}, \mathbf{1 / 4}, \mathbf{5 / 8}, \mathbf{3 / 8}, \mathbf{1 1 / 1 6}, \mathbf{5} / \mathbf{1 6}$ <br> Partial credit <br> 4 correct two points <br> 3 correct two points <br> 2 correct one point | 4 <br> (3) <br> (2) <br> (1) | 4 |
| 4. Gives correct explanation such as: <br> Each time a half of the previous fraction is added or subtracted from the black fraction. <br> (The limit of the black fraction is $2 / 3$.) <br> Partial credit <br> For a partially correct explanation that either addresses change by half or the oscillating adding or subtracting. | 2 <br> (1) | 2 |
| Total Points |  | 10 |

