

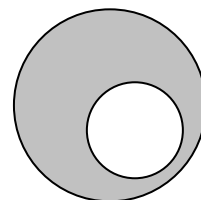
Grade 8

EXTRA CHALLENGES - SET III

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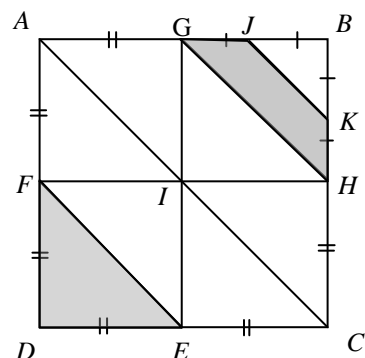
1. If all the integers from 1 to 100 are written, how many times will the digit 5 appear?

2. In the diagram, the radius of the larger circle is twice the radius of the smaller circle. What is the ratio of the shaded area to the unshaded area?

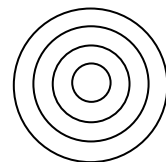


3. The positive integers are written consecutively in groups of five so that the first row contains 1, 2, 3, 4, 5, the second row 6, 7, 8, 9, 10, and so on. What row has a sum nearest to the value of 150?

4. Square $ABCD$ is divided as shown. What fraction of the square is shaded?



5. Michael was drawing concentric circles. The first circle had a radius of one. The radius of each circle is 1 cm greater than the previous circle. If he has just enough ink in his pen to continue the pattern so that the sum of the circumferences is 3000 cm, how many circles can Michael draw before his pen runs out of ink?



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