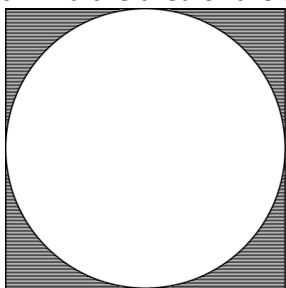




# Geometry 5th/6th

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|---|--|
| 1 | The three side lengths of triangle $ABC$ form an arithmetic sequence with a common difference of 1. If angle $C$ is a right angle, what is the length of $AB$ ?  |
| 2 | The ratio of the base of triangle $A$ to that of triangle $B$ is 2: 3 and the ratio of the height of triangle $A$ to that of triangle $B$ is 1: 5. What is area of triangle $A$ if the area of triangle $B$ is 105?                      |
| 3 | In triangle $ABC$ , angle $A$ is 50 degrees and angle $B$ is 40 degrees. In degrees, what is the measure of angle $C$ ?  |
| 4 | Find the volume of a pyramid with a height of 5 and a square base with a side length of 9.   |
| 5 | In the following diagram, a circle with circumference of $10\pi$ is inscribed in a square with side length 10. Find the area of the shaded region.<br> |
| 6 | Points $X, Y, Z$ , and $W$ are collinear, and in alphabetical order. If $XW = 5$ , $YZ = 3$ , and $XY = ZW$ , find the length of $XY$ .  |
| 7 | Peter has a string 120cm long. What is the sum of the areas of the largest square he can outline with this piece of string and the largest hexagon he can outline with this piece of string?   |
| 8 | The ratio of angle $A$ to angle $B$ is 1: 3 and the ratio of angle $B$ to angle $C$ is 1: 2. If $ABC$ is a triangle, find the value of angle $C$ .   |
| 9 | Let $v$ represent the number of vertices, $e$ the number of edges, and $f$ the number of faces of a cube. What is the value of $v - e + f$ ?   |

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Let  $D$  be the foot of the perpendicular line drawn from  $A$ . Let point  $E$  divide line  $AD$  so that  $ED$  is half of  $AE$ . If  $AE = 2$  and  $AC = AB = BC$ , find the area of triangle  $ABC$ .

