



To solve this problem, we need to determine the lateral area of the rotating body formed by rotating triangle ABC around the line where AC is located. The rotating body will be a cone with the base radius equal to the length of BC and the height equal to the length of AC.

First, let's identify the dimensions of the triangle: i) The length of BC is 3; ii) The length of AC is 4. When the triangle is rotated around AC, the lateral surface of the cone will be formed by the arc of the circle with radius 3 (the length of BC) and the height of the cone will be 4 (the length of AC). The formula for the lateral area of a cone is given by: Lateral Area =  $\pi \times \text{radius} \times \text{slant height}$ 



Here, the radius of the base of the cone is 3 and the slant height is 4. Therefore, the lateral area is: Lateral Area =  $\pi \times 3 \times 4 = 12\pi$ Thus, the lateral area of the rotating body is A.



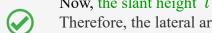
<think> To determine the lateral area of the rotating body formed by rotating triangle ABC around the line, where AC is located, we need to understand that the rotating body is a cone. The lateral area of a cone is given by the formula: Lateral Area =  $\pi r l$ , where r is the radius of the base of the

LMM-R1 cone and l is the slant height of the cone. In this problem, the radius r of the base of the cone is the length of the side BC, which is 3. The slant height l of the cone is the length of the hypotenuse of triangle ABC. First, we need to find the length of the hypotenuse AB.

Using the Pythagorean theorem in triangle ABC:  $AB = \sqrt{AC^2 + BC^2}$ .



We know AC = 4 and BC = 3, so:  $AB = \sqrt{4^2 + 3^2} = \sqrt{16 + 9} = \sqrt{25} = 5$ .



Now, the slant height l is 5. The lateral area of the cone is: Lateral Area  $= \pi \times 3 \times 5 = 15\pi$ . Therefore, the lateral area of the rotating body is: |B|</think>