Surface Area of a Right Cone

Goal: We want to find a way (formula?) to find the surface area of a cone.

Let us reach a formula via experiment. We want to construct a right cone with:
- a base of radius 3 cm
- a slant height of 5 cm

** Mark the centers of the circles as you create them!

Step 1: Construct a circle with radius 3 cm. [use a compass and perhaps draw a radius first]

Step 2: Construct another circle with radius 5 cm that shares only one point with the original circle.
[use a compass... draw a radius of 5 cm that touches the other circle once first]

Step 3: Calculate the circumference of the base [the first circle]

Step 4: Use the circumference of the base as the arc length of the other circle to be used in the net. Find the measure of the central angle that gives the desired arc length. (Remember how to do that?) Draw in this central angle in the larger circle so that it contains the smaller circle.

Step 5: You have the net for the cone!

Step 6: Cut out the net!

Step 7: Find the combined areas of the base and the sector of a circle (part of larger circle).

Step 8: Tape the cone together.

- What does the radius of the larger circle represent in the final figure?

Step 9: Does the value you found in Step 7 represent the surface area of the cone?