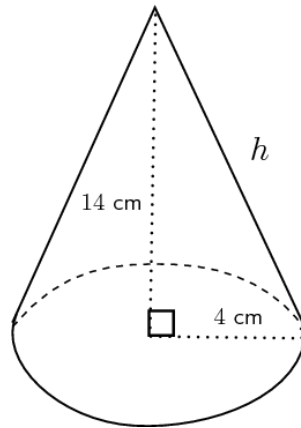


Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Ice Cream Engineers

Keebler is currently developing a new experimental ice cream cone that is sealed on all sides, but has ice cream inside! This revolutionary design would allow snackers to put their ice cream cones flat on the table while eating. Their current blueprint for the cone's design is as follows:



To determine if their design is viable, Keebler hired two engineers, Ben and Jerry, to calculate how much material would be required for these new cones. Ben and Jerry know for a fact that for cones, **surface area** =  $\pi rs + \pi r^2$ . Here is what they came up with:

We know  $r = 4$ , since that is the radius of the circle. We can use the Pythagorean Theorem to find  $s$ :



$$s^2 = 4^2 + 14^2$$

$$s^2 = 16 + 196$$

$$s^2 = 212$$

$$\sqrt{s^2} = \sqrt{212}$$

$$s = 14.56 \text{ (approximately)}$$

Since surface area =  $\pi rs + \pi r^2$ :

$$\pi \cdot 4 \cdot 14.56 + \pi \cdot 4^2 = 182.97 + 50.27$$

$$= 233.24 \text{ (approximately)}$$

The surface area of the cone is roughly  $233 \text{ cm}^2$ .

