

**TOPIC 19-3: FUNCTION APPLICATIONS WITH**

**EXAMPLE 1:** If the volume of a right cylinder is  $400\pi$  cubic units, write an expression for its lateral surface area as a function of its radius.

**EXAMPLE 2:** An empty cylindrical swimming pool has a height of 5 ft and a diameter of 18 ft. Water is flowing into the pool at a constant rate. After 60 minutes, the height of the water in the swimming pool is 2 ft.

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| <p><b>a)</b> Sketch a picture of the problem situation.</p>                | <p><b>b)</b> What is the volume of the water in the pool after 60 minutes?</p>                            |
| <p><b>c)</b> What is the rate at which water is flowing into the pool?</p> | <p><b>d)</b> Express the volume of the water in the pool as a function of the height, <math>h</math>.</p> |
| <p><b>e)</b> What is the volume of the water if the height is 4 feet?</p>  |   |