Name: **Key**

Date:_____ Class:_____

Vanilla Ice's Ice Creamery

Vanilla Ice's Ice Creamery has a very special special. They make a waffle cone out of chocolate chip pancake dough and place a giant sphere of ice cream on top of it. The sphere of ice cream has a circumference of 51 cm while the cone has a diameter of 16 cm and a slant height of 34 cm. One day Rob Base stopped by the creamery and ordered a Moose-Tracks Special. While he was waiting for his cone, he noticed Vanilla Ice and they began talking. Vanilla challenged Rob to a rap-throwdown. As soon as the challenge was accepted by Rob, his ice cream was delivered to the cone holder on the counter. Since Vanilla and Rob both spit some crazy hot rhymes the challenge took a long time to complete and combined with South Florida heat Rob's ice cream completely melted by the time he returned to eat it. Did Rob Base's ice cream overflow the cone or did the cone hold all of the ice cream?

$$C = 51$$
$$2\pi r = 51$$
$$r = \frac{51}{2\pi}$$

$$V_{sphere} = \frac{4\pi \left(\frac{51}{2\pi}\right)^3}{3} = \frac{44217}{2\pi^2} \approx 2240.06 \ cm^3$$

$$h = 2\sqrt{273}$$

$$V_{cone} = \frac{\pi (8)^2 (2\sqrt{273})}{3} = \frac{128\pi\sqrt{273}}{3} \approx 2214.73 \ cm^3$$

The ice cream over flowed the cone, since its Volume (2240.06 cm³) was greater than that of the cone (2214.73 cm³).