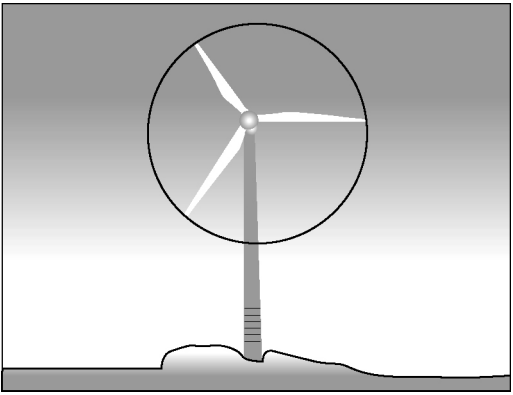


## Chapter 8 Problems of the Week

<p><b>1.</b> Think about two six-sided dice, one red and one green.</p> <p><b>a)</b> Make a table of values to show the number of ways to get each possible sum of the two dice. <b>Hint:</b> You can get a sum of 3 two ways: a red 2 and a green 1 or a red 1 and a green 2.</p> <p><b>b)</b> Use the table to create a circle graph that shows the number of ways to roll each sum. <b>Hint:</b> Round to the nearest percent.</p>	<p><b>2.</b> Suppose a boat's radar has three settings for the radius of the circle it will cover: 1 km, 5 km, and 10 km.</p> <p><b>a)</b> Draw a diagram that represents each radar setting shaded differently.</p> <p><b>b)</b> Calculate the area each setting covers.</p> <p><b>c)</b> If the power needed is proportional to area covered, how much more power is needed for the largest setting compared to the smallest one? Explain your thinking.</p>
<p><b>3. a)</b> Draw a series of five circles. Each circle must have four times the area of the previous one.</p> <p><b>b)</b> What change in radius is necessary to quadruple the area?</p> <p><b>c)</b> Write a rule that predicts how change in radius affects the area of a circle.</p>	<p><b>4.</b> A circle with a radius of 4 cm sits on the edge of a circle with a radius that is twice as large.</p> <p><b>a)</b> How many revolutions must the small circle make to get all the way around the larger circle?</p> <p><b>b)</b> If the small circle takes four revolutions to get around another circle, what is that circle's radius?</p>
<p><b>5.</b> Consider two wind turbines. The ratio of the electricity they generate is the same as the ratio of the area the wind turbine blades sweep.</p> <p><b>a)</b> How much energy will a wind turbine with an 80-m diameter sweep generate compared to one with a 40-m diameter sweep?</p> <p><b>b)</b> How much energy will a wind turbine with a 20-m diameter sweep generate compared to one with a 40-m diameter sweep?</p> <p><b>c)</b> Write a rule that predicts the energy generated when diameter is halved.</p>	 A diagram of a wind turbine. The turbine has three blades and is mounted on a tower. A large circle is drawn around the blades, representing the area they sweep. The background is a gradient from light to dark, suggesting a sky. The ground is shown as a simple line at the bottom.