

Show all your work for full credit. Unsupported answers = 0 points. Use an extra sheet of paper if necessary.

1. John can twirl a slingshot with a rock on the end of it 3 revolutions per second. If the sling has a radius of 3.5 feet, calculate the speed of the rock when it is released from the sling in feet per second **and** in miles/hour.

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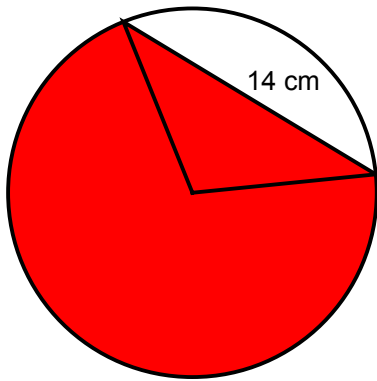
2. Jerry is in a hot air balloon and has no idea how high he is above the ground. However, he spots two landmarks that he knows are 1.5 miles apart. Looking at the two landmarks the angle of depression to landmark A is 41° , and the angle of depression to landmark B is 12° . Calculate the height of the balloon to the nearest foot. Note: the landmarks are in the same direction.

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3. A triangle has two adjacent sides of 34 inches and 22 inches with an included angle of 37.2° . Calculate the area of the triangle. Round accurately to three decimal places.

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4. A circular piece of paper has a diameter of 18 cm. A portion of the circle is cut off in a straight line and has a length of 14 cm. Find the area in the remaining part, i.e., the area of the shaded region below. Round to three decimal places.



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5. Sally is standing on an Oregon coast beach and wonders how far away a ship is (as measured on the surface of the Earth) when it slips below the horizon. If Sally estimates the height of her eyes to be about 6 feet above sea level, how far can she see to the horizon? Assume the diameter of the earth is approximately 7926 miles. Round to the nearest hundredth of a mile. Recall: 1 mile = 5280 feet.

Hint: When a line is drawn tangent to a circle, and a second line is drawn from the center of the circle to the point of tangency, you create a right angle.

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