Set 2 - Geometry, Bakery

(no calculator allowed)

1. On a map that uses a grid system like the first quadrant of the coordinate plane, the bakery is located at (4,10), and Lila's last stop is located at (12, 8). She has to stop halfway to check the cakes she is delivering. At what point will Lila stop?
    a. (8,9)
2. A ramp that will be used to offload supplies from the back of the truck has a height of 15 inches and a length of 36 inches. What is the distance that the cart will travel going down the ramp?
    a. 39 inches.
3. Jorge is creating the wrapper (that won't cover the top or bottom) for a cylindrical container of treats that is added as a gift for customers. He only knows that the height of the container is 5 inches and that the radius is 2 inches. What are the dimensions of the rectangular wrapper?
    a. 5 inches x 4pi inches
4. Lila's cake company is printing circular stickers to go on top of their cupcake boxes. The top of the box has dimensions of 4 inches by 4 inches. What is the largest area of sticker that will fit on the box?
    a. 4π square inches.
5. Viktor is in charge of cutting heart shapes out of rectangles to add as tags to cake boxes. The heart shapes are constructed of an isosceles triangle with a base of 6 inches and side lengths of 5 inches, and two semicircles along the base of the triangle that line up edge to edge. What is the shortest dimension of the rectangle that Viktor must cut before cutting out the heart shape?
    a. 5.5 inches
6. Amira is trying to figure out how many mini cake boxes she can fit in her giant fridge. The fridge has extra space with the dimensions of 2 feet by 3 feet by 2 feet. If the mini cake boxes are cubic and have dimensions of 6 inches, how many mini cake boxes can fit in the fridge space?
    a. 96 mini cake boxes.

(calculator allowed):

7. Amira refuses to walk any distance greater than 2.5 miles. The bakery is located 4 miles north and 10 miles east from the center of town, and Amira is located 2 miles north and 6 miles east from the center of town. To the nearest tenth, what distance will she walk from her house to the bakery, and will she walk the distance?
    a. 4.5 miles, and she is definitely not walking.
8. Viktor is witnessing a donut get abducted by a UFO. If Viktor is viewing this UFO from an angle of elevation of 30 degrees and the UFO is suspended 3 yards in the air, what is the horizontal distance from Viktor to the UFO?
    a. Square root of 27 yards, 5.2 yards.

9. For the design of a donut box, a right triangle with angles of 45 degrees, 45 degrees and 90 degrees is being placed. If the longest side of the triangle is 15 cm, what is the product of the lengths of the legs of the triangle?
    a. 112.5 cm
10. Viktor is designing the cubic box that will be used to cover a cubic cake with a side length of 7 inches. If the cubic box must be 3.5 inches longer than the cake on all dimensions, what is the surface area of cardboard needed to create the box?
    a. 661.5 square inches.
11. A rectangular tray of balaklava is being cut into parallelograms, and the area of a parallelogram follows the same area formula as a rectangle. Just based on the rectangular face of the tray, if each piece of balaclava has a height of 5 cm and a base of 4 cm, how many pieces of balaclava can be cut out of a tray with dimensions of 0.2m by 0.1 m and a tray with dimensions of 0.5m by 0.2m?
    a. 60 pieces of balaclava.
12. Cans of pastry dough have a radius of 1.5 inches and a height of 6 inches. Assume that the inside of the can is essentially 100% filled with dough. Each apple turnover requires a volume of dough that is 2 inches by 4 inches by 0.25 inches. Using 3.14 as pi, how many whole apple turnovers can you make with three cans of pastry dough?
    a. About 63.