8-1: Find the Surface Area of Three-Dimensional Figures

1. Sample answer: The surface area of a three-dimensional figure is found by adding the areas of its two-dimensional faces.

2. Sample answer: The length of the base of the rectangle will wrap around the outside of the circle in a net, show that the base length is equal to the circumference of the circle.

3. No; Sample answer: The areas of the bases will be the same, but different heights will produce cones with different surface areas.

4. About 69.1 mm^2

5. About 65.9 ft^2

6. 4π cm^2

7. 3; 3; 5
   9; 15
   18; 30
   48
   150.7

8. 7; 13; 7
   49; 91
   140
   440

9. Sample answer: She forgot to include the area of the curved side, which unfolds to form a rectangle. The correct surface area is about 494.6 in^2.

10. About 42,226.72 yd^2

11. About 960.8 in^2

12. 12

13. a. About 141 cm^2

    b. Sample answer: The surface area will be one-quarter of the original area. The area of the circle will be $(\pi)(\frac{1}{2} \cdot r)^2$, which is $\frac{1}{4} \pi r^2$. The area of the arc will be $(\pi)(\frac{1}{2} r)(\frac{1}{2} r)$, which is $\frac{1}{4} \pi L$. Since both areas are quartered, the total area is quartered.

14. C

15. 3,768