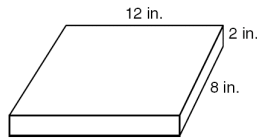Name: _____ Class: _____ Date: _____

Surface Area of Rectangular Prisms and Cylinders

Multiple Choice (13 items, 5 points each)
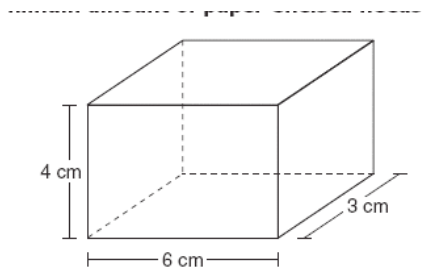Identify the letter of the choice that best completes the statement or answers the question.

____ 1. Carl is covering the rectangular prism-shaped box with cloth.

What is the minimum amount of cloth Carl needs to cover the entire box?

a. 22 in^2 c. 192 in^2
b. 136 in^2 d. 272 in^2

____ 2. Chelsea wants to cover a rectangular prism-shaped box with paper. Which is the closest to the minimum amount of paper Chelsea needs?

a. 26 cm^2 c. 72 cm^2
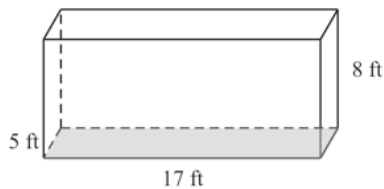b. 54 cm^2 d. 108 cm^2

____ 3. Lois made a storage box that is 2 ft long, 2 ft wide, and 1 ft high. What is the surface area of the storage box?

a. 2 sq ft   c. 8 sq ft
b. 4 sq ft   d. 16 sq ft

___ 4. When Tyson opens and lays out a cereal box flat, he sees that the top and the bottom of the box both measure 11 inches by 8 inches, the sides of the box both measure 11 inches by 6 inches, and the front and back of the box both measure 8 inches by 6 inches. What is the surface area of Tyson's cereal box?

      a. 202 in^2 c. 308 in^2
      b. 228 in^2 d. 404 in^2

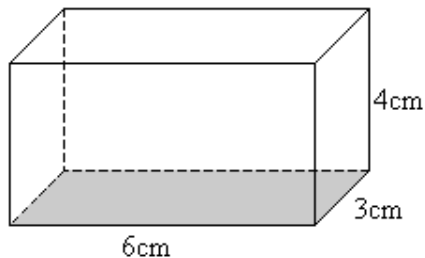___ 5. Find the surface area of the prism.

8 ft

5 ft

17 ft

      a. 261 ft^2 c. 680 ft^2
      b. 522 ft^2 d. 1360 ft^2

___ 6. Mary has a rectangular mailbox that is 8 inches wide, 20 inches long, and 7 inches tall. She wants to find the surface area of the mailbox so that she can paint the outside of the mailbox blue. What is the surface area?

      a. 35 in^2 c. 1120 in^2
      b. 712 in^2 d. 2240 in^2

___ 7. Which expression shows how to find the surface area of the rectangular prism?

4cm

3cm

6cm

a. $2(6 \cdot 4) + 2(3 \cdot 4) + 2(6 \cdot 3)$
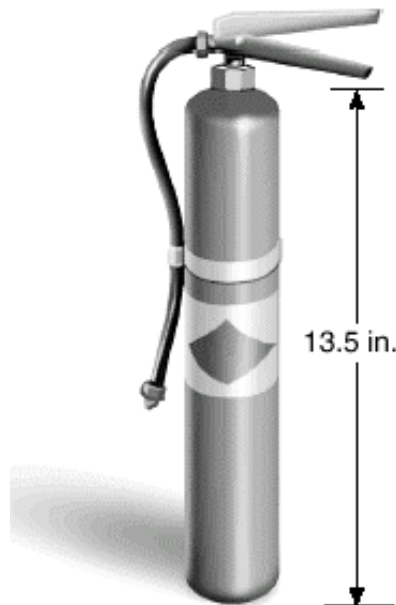b. $6(3)(4)$
c. $4(6) + 4(3) + 4(4)$
d. $6(6 + 3 + 4)$

___ 8. Trevor covered a cylindrical can with paper for a project. The can is 18 centimeters tall and has a 5-centimeter radius. Which is the closest to the minimum amount of paper Trevor needed to cover the entire can?

a. 283 sq cm
b. 54 sq cm

c. 722 sq cm
d. 1,413 sq cm

___ 9. A paper cup is a perfect cylinder that is 6.4 cm tall and 3 cm across. Find the total area of paper needed to make the cup, to the nearest square centimeter.
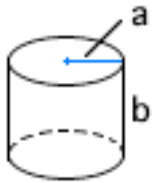
a. 50 sq cm
b. 60 sq cm

c. 67 sq cm
d. 74 sq cm

___ 10. The cylindrical canister of this fire extinguisher has a radius of 2.5 inches and is 13.5 inches high. Which expression shows how to find the surface area of the cylinder?
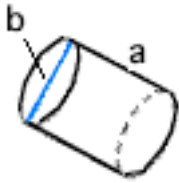

13.5 in.

a. $(2.5)(13.5)$
b. $2\pi(2.5)^2 + (13.5)(2\pi)(2.5)$
c. $2\pi(2.5)(13.5)$
d. $2\pi(2.5)^2(13.5)$

___ 11. Find the surface area of the cylinder, where a = 3 in and b = 4 in. Use 3.14 for π.

a. 12 in^2 c. 113.04 in^2
b. 24 in^2 d. 131.88 in^2

___ 12. Find the surface area of the cylinder, where a = 6 cm and b = 4 cm. Use 3.14 for π.

a. 75.36 in^2 c. 138.16 in^2
b. 100.48 in^2 d. 301.44 in^2

___ 13. Suppose you have an oatmeal container that is shaped like a cylinder. The radius of the cylinder is 50 mm and the height is 140 mm. What is the surface area of the cylinder? Use 3.14 for π.

a. 190 mm^2 c. 59,660 mm^2
b. 7000 mm^2 d. 1,099,557.429 mm^2

True/False (2 items, 5 points each)
Identify whether the following statements are true or false.

___ 14. A rectangular prism has 3 pairs of identical sides.
   a. True
   b. False

___ 15. The surface area of an object is the total area of the exterior surface of a solid.

   a. True
   b. False

Short Answer (5 items, 5 points each)
Show all of your steps and work that you used to come to your final answer.
Make sure to include the units.

16. Suppose you have a present that you would like to wrap. The box is 10 in wide, 12 in long, and 6 in tall. How much paper do you need to cover the box?

17. A storage room shaped like a cube is 9 ft long. What is the total surface area of the room, including the floor?

18. What happens to the surface area of a rectangular prism if all three of its dimensions are doubled?

19. A label covers the tube of a cylindrical can. The radius of the can is 7 cm and the height is 23 cm. What is the total area of the label? Use 3.14 for π.

20. Suppose a water tank in the shape of a cylinder is thirty feet long and eight feet in diameter. How much sheet metal was used in its construction? Use 3.14 for π.