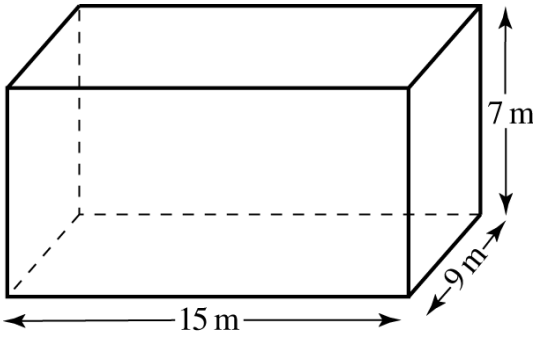
Surface Area and Volume

Name: _____

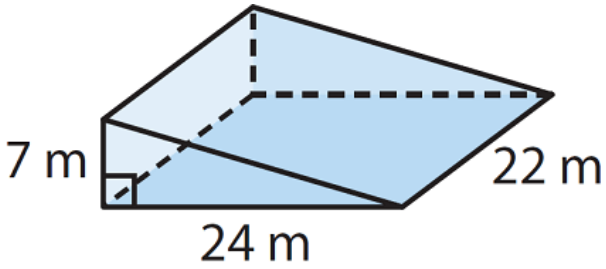
Find each of the following. Show all work to receive credit.

1. A cube has a side length of 15 inches. Find the surface area and the volume of the cube.

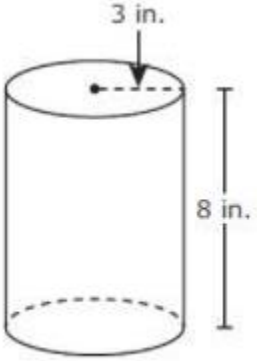
2. The box shown below is open at the top. How much cardboard is needed to create the box?



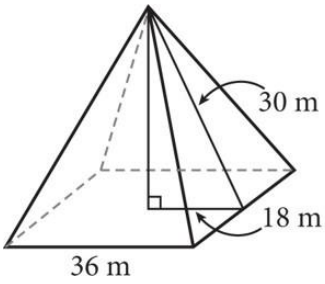
3. Find the surface area of the triangular prism shown.



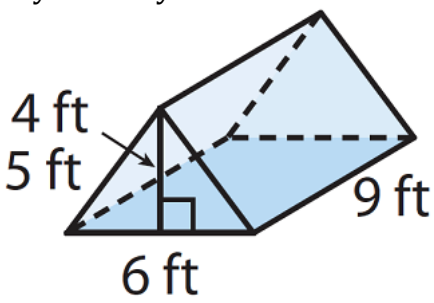
4. A metal can is made of stainless steel. Using the dimensions shown on the diagram, calculate the total surface area of the can to the nearest square inch. If the price of steel is \$0.18/in^2, then what is the material cost to build this can?



5. Find the surface area and the volume of the pyramid.



6. You are going camping and need to purchase a tent. You plan to purchase the tent shown below for $75 from a store, but a friend offers to sell you the same tent for $1 per cubic foot. Should you buy it from your friend or from the store?



7. How much ice cream can fit into a cone with a diameter of 5 cm and height of 12 cm? Round your answer to the nearest cm^3. (Note: This is only how much will fit inside the cone – there are no scoops on top of the cone!)

8. The volume of a rubber ball is approximately 65.5 in^3. You are trying to throw it through a circular hole that has a diameter of 3 inches. Will the ball fit through the hole?

Surface Area and Volume Answer Key

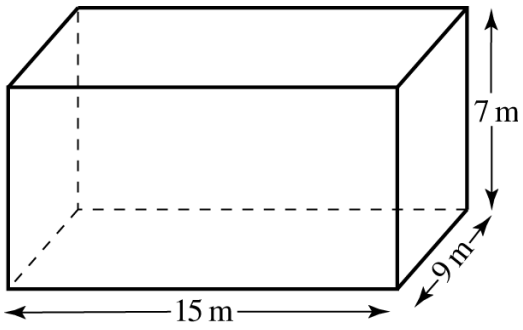
Name: _____

Find each of the following. Show all work to receive credit.

1. A cube has a side length of 15 inches. Find the surface area and the volume of the cube.

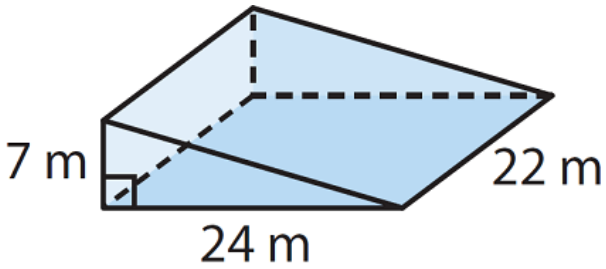
   Surface Area: 1,350 in^2
   Volume: 3,375 in^3

2. The box shown below is open at the top. How much cardboard is needed to create the box?



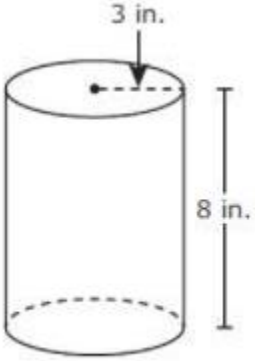
   Surface Area (without the top): 471 m^2

3. Find the surface area of the triangular prism shown.



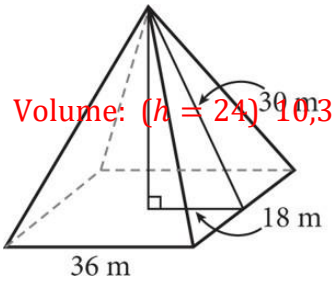
   Surface Area: 1,400 m^2

4. A metal can is made of stainless steel. Using the dimensions shown on the diagram, calculate the total surface area of the can to the nearest square inch. If the price of steel is \$0.18/in^2, then what is the material cost to build this can?



   Surface Area: 207 in^2 Cost: \$37.26

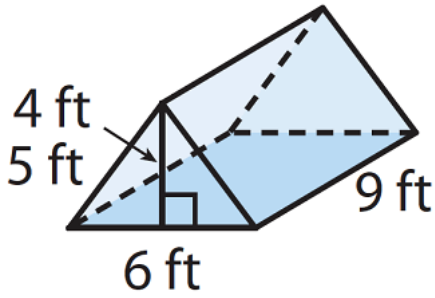
5. Find the surface area and the volume of the pyramid.



Surface Area: 3,456 m^2

Volume: (h = 24) 10,368 m^3

6. You are going camping and need to purchase a tent. You plan to purchase the tent shown below for $75 from a store, but a friend offers to sell you the same tent for $1 per cubic foot. Should you buy it from your friend or from the store?



You should buy it from the store. The volume of the tent is 108 ft^3, so your friend will charge you $108.

7. How much ice cream can fit into a cone with a diameter of 5 cm and height of 12 cm? Round your answer to the nearest cm^3. (Note: This is only how much will fit inside the cone – there are no scoops on top of the cone!)

Volume: 79 cm^3

8. The volume of a rubber ball is approximately 65.5 in^3. You are trying to throw it through a circular hole that has a diameter of 3 inches. Will the ball fit through the hole?

No, the radius of the ball is approximately 2.5 inches, which makes the diameter of the ball around 5 inches.