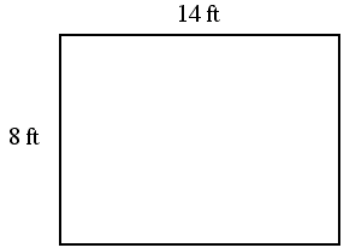
SOME NUMBERED QUESTIONS HAVE BEEN DELETED OR REMOVED. YOU WILL NOT BE USING A CALCULATOR FOR PART I MULTIPLE-CHOICE QUESTIONS, AND THEREFORE YOU *SHOULD NOT USE* ONE FOR THE REVIEW PACKETS.

MULTIPLE CHOICE

1. Find the area of the rectangle.



A. 44 ft^2 B. 64 ft^2 C. 196 ft^2 D. 112 ft^2

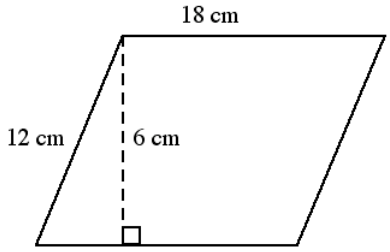
ANS:

2. The length of a rectangular room is 7.9 m and its width is 8.6 m. Find the area of the room.
A. 73.96 m^2 B. 62.41 m^2 C. 67.94 m^2 D. 33 m^2

ANS:

Find the area of the parallelogram.

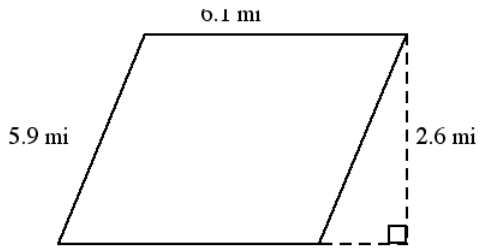
3.



A. 60 cm^2 B. 216 cm^2 C. 108 cm^2 D. 72 cm^2

ANS:

4.



A. 15.34 mi^2 B. 24 mi^2 C. 35.99 mi^2 D. 15.86 mi^2

ANS:

Find the area of the triangle.

5.

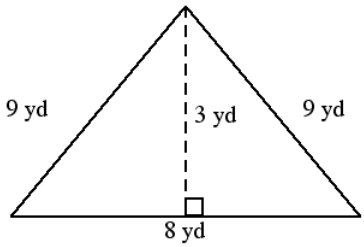
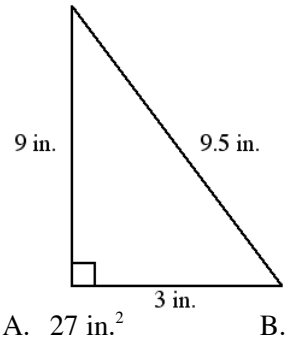


Diagram not to scale.

A. 24 yd^2 B. 12 yd^2 C. 26 yd^2 D. 36 yd^2

ANS:

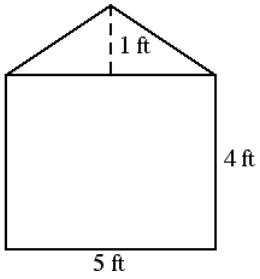
6.



A. 27 $in.^2$ B. 13.5 $in.^2$ C. 28.5 $in.^2$ D. 14.25 $in.^2$

ANS:

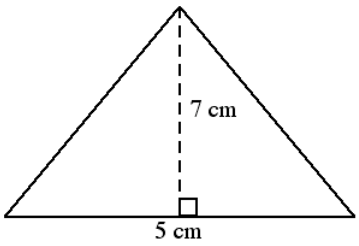
7. 'The diagram shows the dimensions of the front of a storage building. What is the area of the entire front of the building?



A. 25 ft^2 B. 20 ft^2 C. 22.5 ft^2 D. 2.5 ft^2

ANS:

8. Dina is planning to decorate a blanket with this triangular shape. She plans to cut out 68 triangles with these dimensions. What will be the total area of the triangles?



A. 2,380 cm^2 B. 35 cm^2 C. 17.5 cm^2 D. 1,190 cm^2

ANS:

9. The Student Council is making six right triangular pennants to promote school spirit. Each right triangle is 9 inches high and 2 feet long. In square feet, what is the total area of the six pennants?

A. 4.5 ft^2 B. 9.0 ft^2 C. 54.0 ft^2 D. 108.0 ft^2

ANS:

Find the area of the trapezoid.

10.

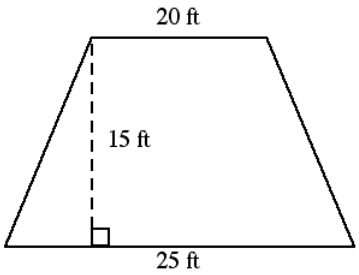


Diagram not to scale.

A. 675 ft^2 B. 337.5 ft^2 C. 187.5 ft^2 D. 150 ft^2

ANS:

11.

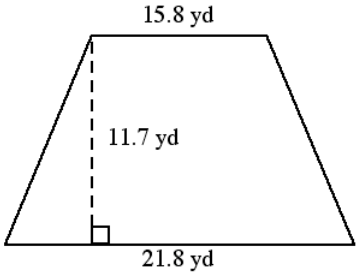


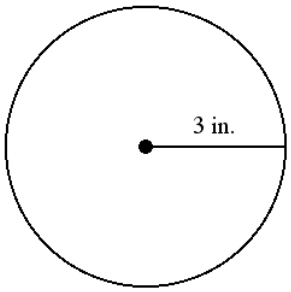
Diagram not to scale.

A. 92.43 yd^2 B. 219.96 yd^2 C. 127.53 yd^2 D. 439.92 yd^2

ANS:

Find the exact area of the circle.

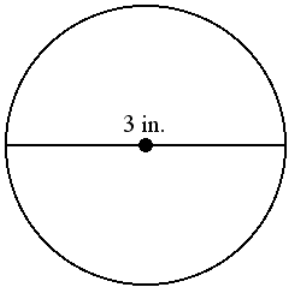
12.



A. 9π in.^{2} B. 28π in.^{2} C. 9π in.^{2} D. 19π in.^{2}

ANS:

13.



A. 2.25π in.^{2} B. 3π in.^{2} C. 9π in.^{2} D. 1.5π in.^{2}

ANS:

14. Find the area of a circle with radius 8.1 m to the nearest square unit.
A. 66 m^2 B. 824 m^2 C. 206 m^2 D. 51 m^2

ANS:

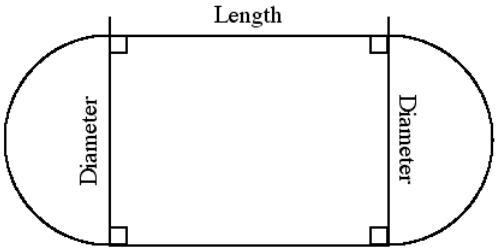
15. A particular model of walkie-talkie can broadcast in a circular area. The radius of the broadcast area is 10,000 feet. Find the area of this circle to the nearest square foot. Use 3.14 for π.
A. 314,000,000 ft^2 C. 1,256,000,000 ft^2
B. 100,000,000 ft^2 D. 62,800 ft^2

ANS:

16. The Pie Factory sells an apple pie with a diameter of 16 inches for $10.99. What is the approximate cost per square inch of surface area of the pie? Use 3.14 for π.
A. $.67 B. $.83 C. $.01 D. $.05

ANS:

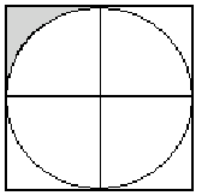
17. A field is to be fertilized at a cost of $0.08 per square yard. The rectangular part of the field is 95 yards long and the diameter of each semicircle is 49 yards. Find the cost of fertilizing the field. Use 3.14 for π.



A. $3,923.87 B. $420.42 C. $975.53 D. $523.18

ANS:

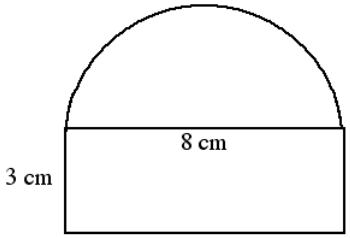
18. The diagram shows a square of side 3 in. containing a circle of diameter 3 in. To the nearest hundredth, what is the area of the shaded part of the figure? Use 3.14 for π.



A. 0.48 in.^{2} B. 1.93 in.^{2} C. 4.03 in.^{2} D. 4.82 in.^{2}

ANS:

19. Find the area of the figure to the nearest square unit.



A. 74 cm^2 B. 49 cm^2 C. 37 cm^2 D. 125 cm^2

ANS:

Write the most precise name for the space figure with the given properties.

20. four lateral faces that are rectangles
A. rectangular pyramid C. rectangular prism
B. triangular pyramid D. cube

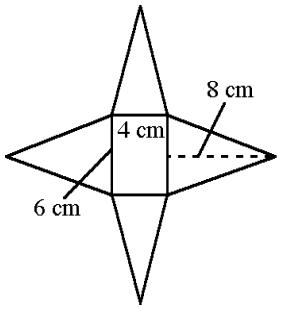
ANS:

21. a lateral surface and two circular bases
A. prism B. sphere C. cone D. cylinder

ANS:

Name the space figure you can form from the net.

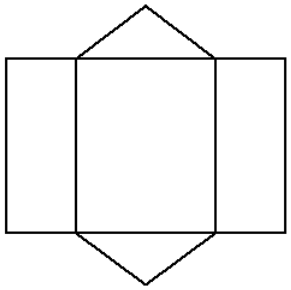
22.



A. rectangular pyramid
B. square pyramid
C. rectangular prism
D. triangular prism

ANS:

23.

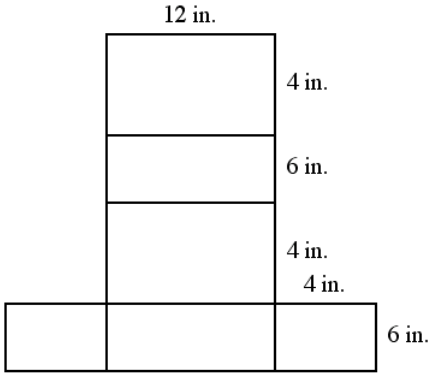


A. rectangular pyramid
B. triangular prism
C. rectangular prism
D. triangular pyramid

ANS:

Find the surface area of the space figure represented by the net.

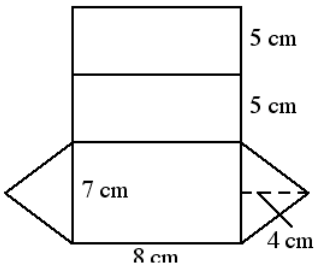
24.



A. 288 in.^{2}
B. 144 in.^{2}
C. 240 in.^{2}
D. 288 in.^{2}

ANS:

25.



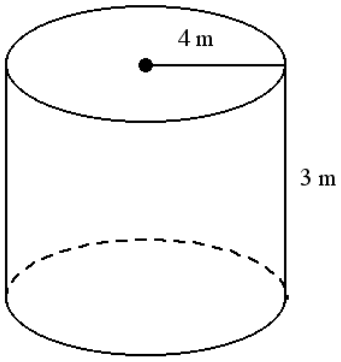
A. 124 cm^2 B. 110 cm^2 C. 150 cm^2 D. 164 cm^2

ANS:

26. Find the surface area of a rectangular prism that is 16 inches long, 12 inches wide, and 5 inches high.
A. 960 $in.^2$ B. 689 $in.^2$ C. 714 $in.^2$ D. 664 $in.^2$

ANS:

27. Find the surface area of the cylinder. Use a calculator. Round to the nearest tenth.



A. 125.7 m^2 B. 138.2 m^2 C. 150.8 m^2 D. 175.9 m^2

ANS:

28. Find the surface area of a cylinder with radius 5.9 ft and height 4.4 ft. Use a calculator. Round to the nearest tenth.
A. 300.3 ft^2 B. 481.2 ft^2 C. 381.8 ft^2 D. 272.5 ft^2

ANS:

29. Renata is completing a craft project that involves covering only the lateral surface of a cylindrical container with fabric. The cylinder has a height of 12.8 in. and a diameter of 15.1 in. To the nearest square unit, how much fabric does she need for this project? Use a calculator.
A. 1,214 $in.^2$ B. 2,040 $in.^2$ C. 2,647 $in.^2$ D. 1,931 $in.^2$

ANS:

30. Find the surface area of the square pyramid.

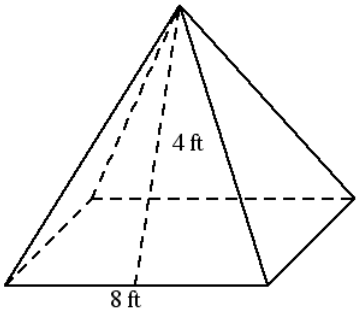


Diagram not to scale.

A. 64 ft^2 B. 128 ft^2 C. 80 ft^2 D. 96 ft^2

ANS:

31. Andy is building a model of a square pyramid for a class project. The side length of the square base is 11 inches and the slant height of the pyramid is 15 inches. What is the surface area of the model pyramid?
A. 451 $in.^2$ B. 203.5 $in.^2$ C. 286 $in.^2$ D. 330 $in.^2$

ANS:

32. Find the surface area of a cone with radius of 8.8 cm and slant height of 7.1 cm, to the nearest square unit. Use 3.14 for π.
A. 636 cm^2 B. 341 cm^2 C. 440 cm^2 D. 683 cm^2

ANS:

33. Find the surface area of the cone to the nearest square unit. Use $\pi = 3.14$.

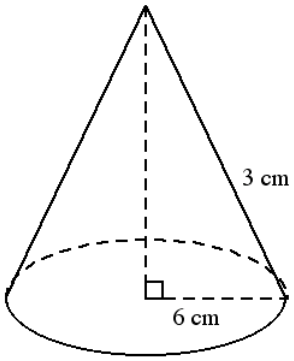


Diagram not to scale.

A. 283 cm^2 B. 170 cm^2 C. 141 cm^2 D. 226 cm^2

ANS:

34. A conical tent made of canvas has a base that is 26 feet across and a slant height of 14 feet. To the nearest whole unit, what is the area of the canvas, including the floor? Use 3.14 for π.
A. 817 ft^2 B. 3,267 ft^2 C. 1,103 ft^2 D. 1,674 ft^2

ANS:

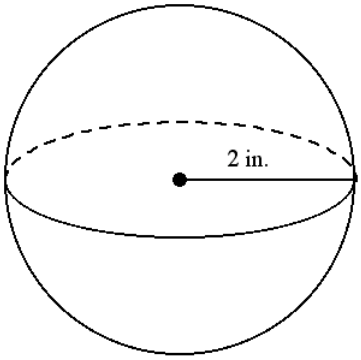
35. George made a conical hat to match his costume for a party. The hat has a slant height of 14 inches and a base circumference of 16 inches. The cone is open at one end. To the nearest square unit, what is the lateral area of the hat?

A. 112 in.^{2} B. 162 in.^{2} C. 56 in.^{2} D. 2,813 in.^{2}

ANS:

Find the surface area of the sphere to the nearest square unit. Use a calculator.

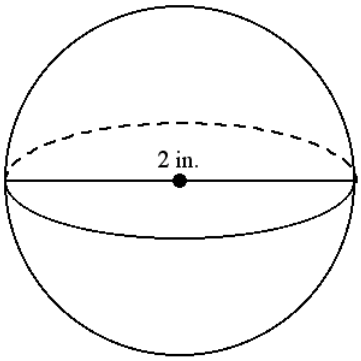
36.



A. 50 in.^{2} B. 13 in.^{2} C. 201 in.^{2} D. 25 in.^{2}

ANS:

37.



A. 13 in.^{2} B. 50 in.^{2} C. 6 in.^{2} D. 3 in.^{2}

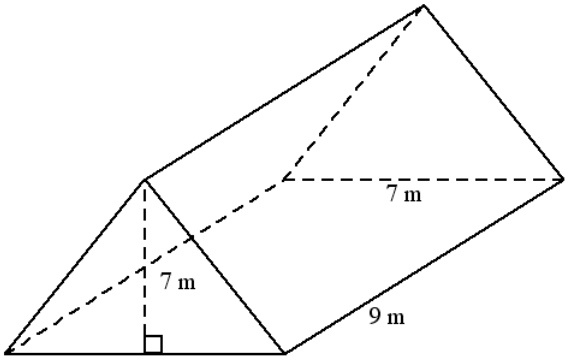
ANS: A

38. Devin won a tiny bouncy ball at the school carnival. The diameter of the ball is 1.25 inches. To the nearest hundredth of a square inch, what is the surface area of the ball? Use 3.14 for π.

A. 19.63 in.^{2} B. 4.91 in.^{2} C. 12.27 in.^{2} D. 9.81 in.^{2}

ANS:

39. Find the volume of the triangular prism.

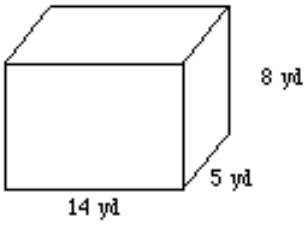


A. 24.5 m^3 B. 441 m^3 C. 31.5 m^3 D. 220.5 m^3

ANS:

Find the volume of the rectangular prism.

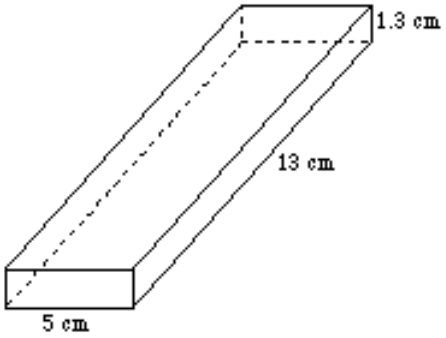
40.



A. 108 yd^3 B. 540 yd^3 C. 560 yd^3 D. 444 yd^3

ANS:

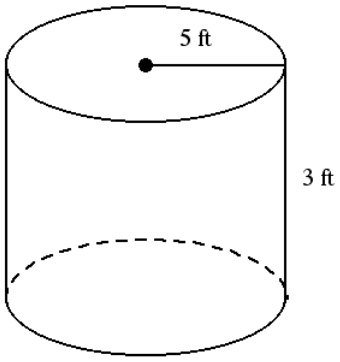
41.



A. 77.2 cm^3 B. 81.9 cm^3 C. 88.4 cm^3 D. 84.5 cm^3

ANS:

42. Find the volume of the cylinder to the nearest cubic foot. Use a calculator.



A. 236 ft^3 B. 942 ft^3 C. 75 ft^3 D. 251 ft^3

ANS:

43. You are designing a new container for powdered laundry detergent. You are considering a cylindrical container with a diameter of 14 inches and a height of 18 inches. Find the volume of this container to the nearest cubic unit.Use a calculator.

A. 1,100 $in.^3$ B. 882 $in.^3$ C. 11,084 $in.^3$ D. 2,771 $in.^3$

ANS:

44. Find the volume of a can of soup that has a height of 16 cm and a radius of 5 cm. Use 3.14 for π.

A. 1,256.0 cm^3 B. 251.2 cm^3 C. 4,019.2 cm^3 D. 502.4 cm^3

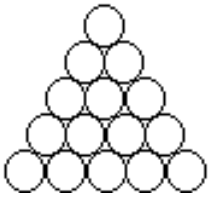
ANS:

45. You cut square corners with side lengths that are whole numbers from a piece of cardboard with dimensions 20 inches by 30 inches. You then fold the cardboard to create a box with no lid. What dimensions will give you the greatest volume?

A. 12 in. by 22 in. by 4 in.
B. 10 in. by 20 in. by 5 in.
C. 14 in. by 24 in. by 2 in.
D. 10 in. by 24 in. by 6 in.

ANS:

46. A grocery clerk sets up a display of oranges in the form of a triangle using 10 oranges at the base and 1 at the top (Only part of the display is shown.). How many oranges are there in the display?



A. 130 oranges B. 105 oranges C. 120 oranges D. 136 oranges

ANS:

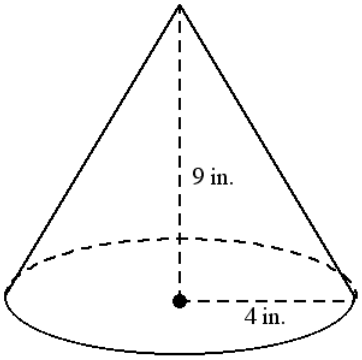
47. Matt works in an office with six different computers. He wants to connect each computer to every other computer with a cable. How many cables will he need?

A. 6 cables B. 15 cables C. 30 cables D. 36 cables

ANS:

Find the volume of the cone to the nearest cubic unit. Use a calculator.

48.



A. 1,810 in.^{3} B. 151 in.^{3} C. 452 in.^{3} D. 276 in.^{3}

ANS:

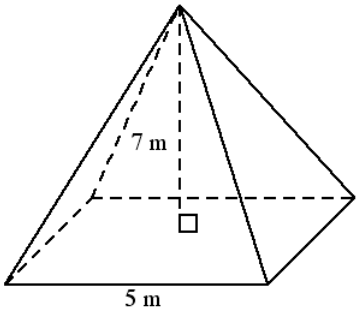
49. height 8 cm; radius 15 cm

A. 1,885 cm^3 B. 1,461 cm^3 C. 5,655 cm^3 D. 22,619 cm^3

ANS:

Find the volume of the square pyramid to the nearest cubic unit.

50.



A. 175 m^3 B. 233 m^3 C. 58 m^3 D. 88 m^3

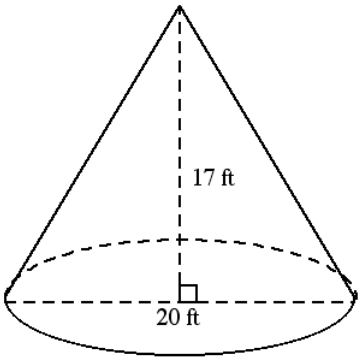
ANS:

51. edge 10 ft; height 11 ft

A. 1,467 ft^3 B. 550 ft^3 C. 367 ft^3 D. 1,100 ft^3

ANS:

52. The diagram shows the dimensions of a teepee. Find the volume of the building to the nearest cubic unit. Use 3.14 for π.

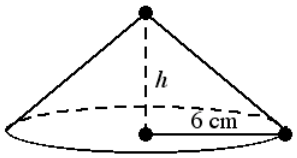


A. 1,780 ft^3 B. 1,382 ft^3 C. 21,363 ft^3 D. 5,341 ft^3

ANS:

Find the missing dimension. Round to the nearest unit. Use 3.14 for π.

53.

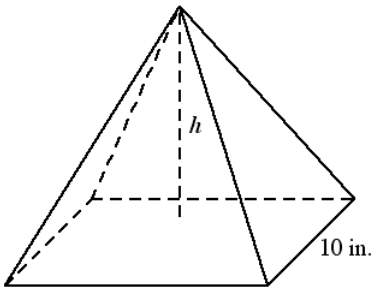


V =150.72
Height = ?

A. 2.7 cm B. 12.56 cm C. 4 cm D. 1.3 cm

ANS:

54.



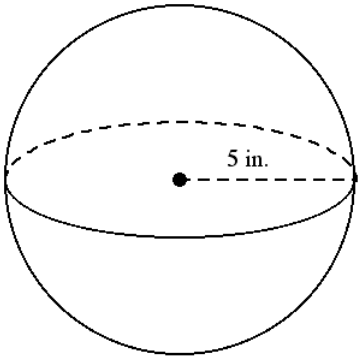
V = 200 in.
Height = ?

A. 6.7 in. B. 12 in. C. 10 in. D. 6 in.

ANS:

Find the volume of the sphere to the nearest whole number. Use $\pi = 3.14$.

55.



A. 524 in.^{3} B. 131 in.^{3} C. 4,189 in.^{3} D. 393 in.^{3}

ANS:

56. $r = 2.8$ m

A. 69 m^3 B. 736 m^3 C. 23 m^3 D. 92 m^3

ANS:

57. $d = 4$ cm

A. 33 cm^3 B. 268 cm^3 C. 50 cm^3 D. 201 cm^3

ANS:

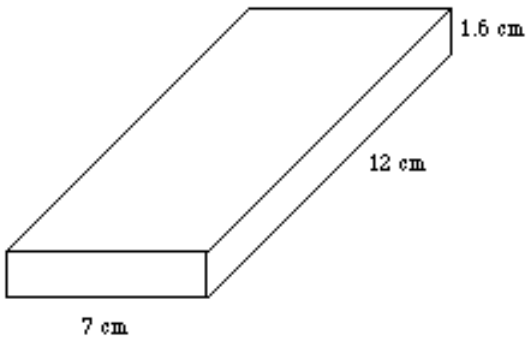
58. Find the area of a triangle with a base of 8 m and a height of 6 m.

A. 7 m^2 B. 48 m^2 C. 24 m^2 D. 14 m^2

ANS:

Find the surface area of the prism.

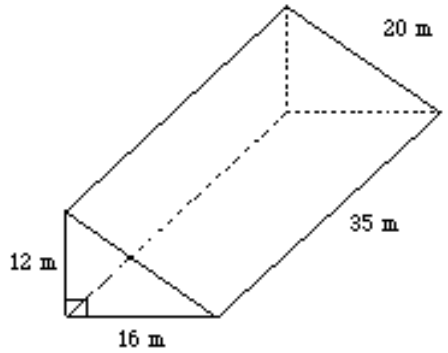
59.



A. 228.8 cm^2 B. 114.4 cm^2 C. 206.4 cm^2 D. 190.4 cm^2

ANS:

60.

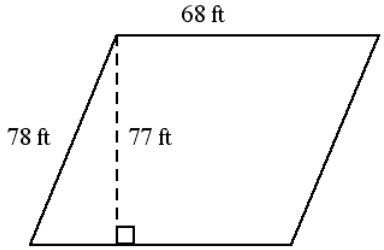


A. 6,720 m^2 B. 1,662 m^2 C. 1,872 m^2 D. 3,360 m^2

ANS:

SHORT ANSWER

1. The Donaldsons bought the unusually shaped lot shown below on which to build a new house.



a. What is the area of the lot?
b. If the Donaldsons build a rectangular house with length 40 feet and width 30 feet, what percent of the area of the lot will be covered by the house?

ANS:

2. The vertices of a parallelogram are $A(-1, -2)$, $B(3, -2)$, $C(4, 3)$, and $D(0, 3)$.
a. Draw the parallelogram.
b. Find the area of the parallelogram.

ANS:

For the figure, describe the base(s), if any, and name the figure.

3.

ANS:

4.

ANS:

5.

ANS:

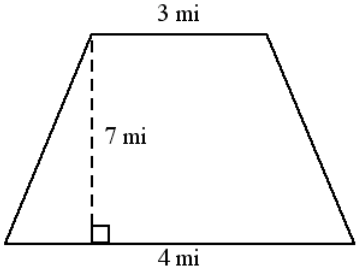
6. Michelle wants to make a packing box from some cardboard she has. She wants the box to be a rectangular prism. Draw a possible net for the packing box.

ANS:

7. An architect is designing a half-spherical dome above a circular fountain and path. The architect wants the dome to be only over the fountain and path. The total diameter of the fountain with surrounding path is 45 feet.
   a. What is the height of the cover? Explain.
   b. What is the surface area of the cover? Show your work.

ANS:

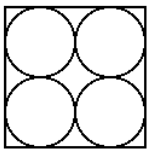
1. The Flying Eagle Wild Bird and Game Preserve is shaped approximately as in the diagram.



   a. Find the area of the preserve in square miles. Explain how you find the area.
   b. There are 640 acres in one square mile. What is the area of the preserve in acres? Explain how you find the number of acres.
   c. Additional land is available for the preserve. The preserve could be expanded to another trapezoid-shaped region with the same height but with bases of length 7 miles and 5 miles. If the preserve is expanded to this new area, what is the percent of increase in area? Explain how you find the percent.

ANS:

2. At the Magic Garden, a rose garden is being designed as shown. The outer figure is a square with side length of 116 feet.



a. What is the diameter of one circle? Explain how you find the diameter.
b. The roses are to be planted in the four circles. The rest of the space will be covered by wood chips. What is the area of the surface that will be covered by wood chips? Explain how you find this area.

ANS:

3. For a particular square pyramid, the length of a side of the base is 8 cm and the slant height is 12 cm. For another square pyramid, the length of a side of the base is 12 cm and the slant height is 8 cm.
a. Find the surface area of each pyramid. Explain your steps for finding the surface area.
b. Explain why the surface areas are different while both have dimensions of 8 cm and 12 cm.

ANS:

4. Megan has a large packing box shaped as a cube with a volume of 216 cubic feet.
a. What is the side length for the cubical box? Explain how you find the length.
b. Megan would like to design a box that is a rectangular prism, but not a cube. What are a possible length, width, and height that she could use if she wants this box to have the same volume as the cube? Explain how you find the dimensions.

ANS:

1. A new circular fountain being designed for a park has a diameter of 30 feet.
a. Find the surface area of the water in the fountain. Explain how you find the area.
b. Suppose the designer of the fountain decides that the surface area of the water in the fountain should be 450 square feet. Find the diameter of this fountain. Explain how you find the diameter.

ANS:

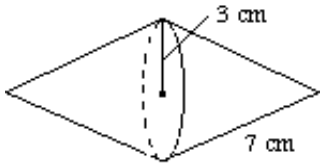
2. A bin for storing harvested grain on a farm is shaped like a cylinder. Describe the bases and the lateral surface of the bin.

ANS:

3. Jessica is designing a cylindrical storage container for lawn chemicals. She first designed a cylinder with radius 12 inches and height 16 inches.
   a. What is the surface area of this container? Explain how you find the surface area.
   b. Jessica is considering changing the container by doubling either the radius or the height of the container. Will doubling the radius of the original container or doubling the height of the original container cause the greater percent of increase in surface area from the original? Explain your method for answering this question.

   ANS:

4. Jodi is making some decorations for a graduation party. A diagram of a decoration is shown. She plans to hang 30 of these figures on wires across the room. What will be the total surface area of the 30 figures? Explain how you find the surface area.



   ANS:

5. Bridger City has a cylindrical tank for storing water used by the residents. The tank has a diameter of 30 feet and a height of 25 feet.
   a. What is the volume of the tank? Explain how you find the volume.
   b. One cubic foot of water is about 7.5 gallons of water. About how many gallons of water are in the tank? Explain how you find the number of gallons.
   c. The city would like to build an additional tank with a volume of 150,000 gallons. Find a possible diameter and height for the new tank. Explain the method you use to find the dimensions.

   ANS:

6. Spaceship Earth at Epcot Center in Florida is a 180-foot geosphere.
   a. Estimate its volume by assuming it is a sphere with diameter 180 feet. Explain how you estimate the volume.
   b. Estimate its surface area by assuming it is a sphere. Explain how you estimate the surface area.
   c. Explain why the volume has a greater numerical value than the surface area even though the volume formula contains the value $\frac{4}{3}$ and the surface area formula contains the value 4.

   ANS: