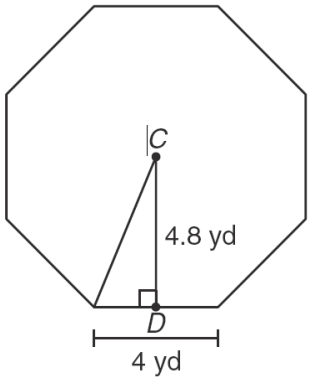
The drama department at McHenry High School has built a stage floor in the shape of a regular octagon. The length of each side of the octagon is 4 yards. $\overline{CD}$ is the apothem. What is the approximate area of the stage floor? [Area = $\frac{1}{2}$ (apothem)(perimeter)]



F 57.9 yd^2
G 76.8 yd^2
H 115.9 yd^2
J 154.5 yd^2

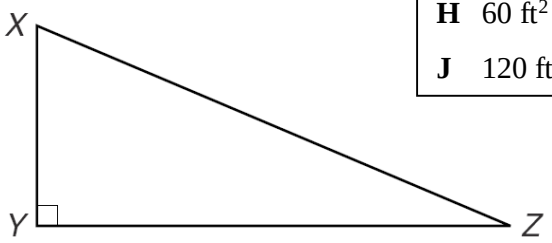
July '06 Obj 8 - # 6

Which of the following sets of numbers represents the side lengths in units of a right triangle?

A 5, 3.2, 4.1
B 3.6, 6, 4.8
C 4.5, 8, 6.7
D 8.5, 5.2, 10

July '06 Obj 8 - # 29

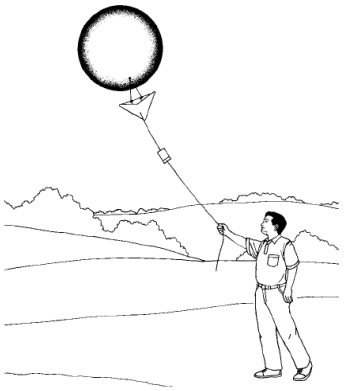
If XY = 8 feet and XZ = 17 feet, what is the area of ΔXYZ?



F 15 ft^2
G 30 ft^2
H 60 ft^2
J 120 ft^2

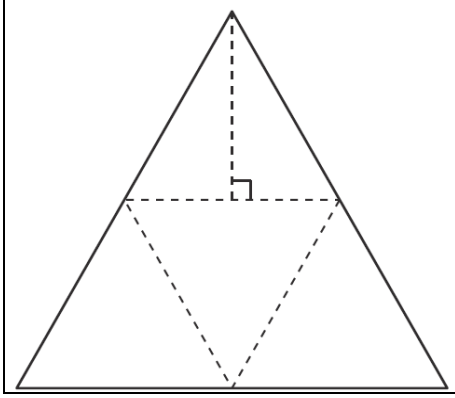
July '06 Obj 8 - # 10

Mr. Norstam has just released a weather balloon with a diameter of about 3 feet. As the weather balloon rises, it will expand and eventually burst because of the changes in the atmospheric pressure. If the weather balloon rises and expands to 1.5 times its diameter before it bursts, what will be its change in volume?



July '06 Obj 8 - # 32

The net of a regular triangular pyramid is shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the pyramid to the nearest tenth of a centimeter. Which of the following best represents the total area of this net?



F 8 cm^2
G 16 cm^2
H 12 cm^2
J 31 cm^2

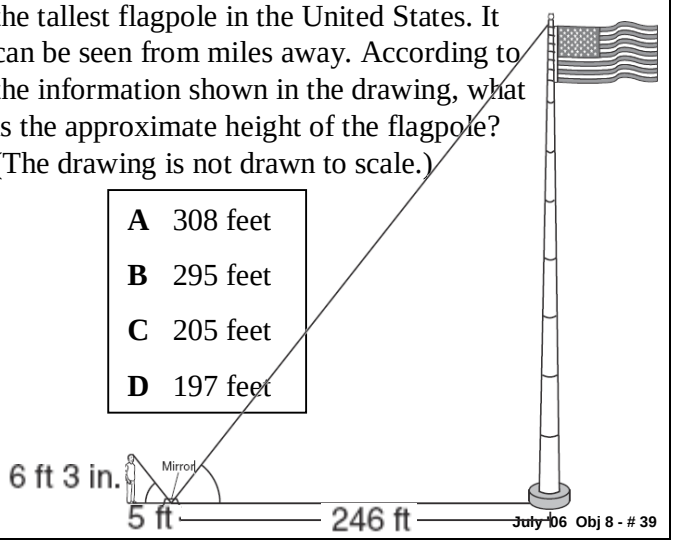
July '06 Obj 8 - # 18

F The volume will increase to less than 2 times the original volume.
G The volume will increase to between 2 and 3 times the original volume.
H The volume will increase to between 3 and 4 times the original volume.
J The volume will increase to between 4 and 5 times the original volume.

July '06 Obj 8 - # 32 (cont)

In 2002, people in Laredo, Texas, erected the tallest flagpole in the United States. It can be seen from miles away. According to the information shown in the drawing, what is the approximate height of the flagpole? (The drawing is not drawn to scale.)

A 308 feet
B 295 feet
C 205 feet
D 197 feet



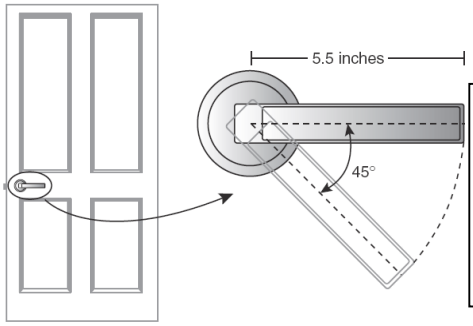
July '06 Obj 8 - # 39

Mr. Kelly's company manufactures a cylindrical soup can that has a diameter of 6 inches and a volume of 226 cubic inches. If the diameter stays the same and the height is doubled, what will happen to the can's volume?

A It will remain the same.
B It will double.
C It will triple.
D It will quadruple.

April '06 Obj 8 - # 3

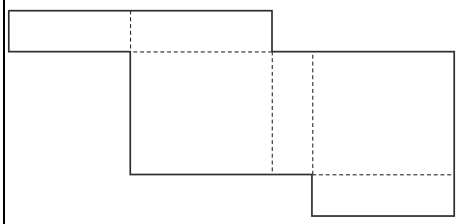
Look at the diagram below. When the door handle is pushed down to open the door, it makes a 45° angle with its former position. What is the approximate arc length of the path traveled by the outside end of the door handle when the handle is pushed down?



A 34.56 in.
B 11.88 in.
C 4.32 in.
D 2.16 in.

July '06 Obj 8 - # 45

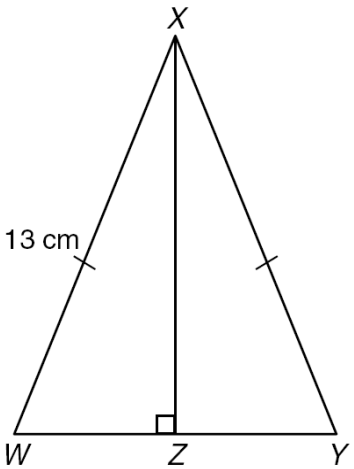
Jackie made a rectangular prism to hold her earrings. The net of the rectangular prism is shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the rectangular prism to the nearest $\frac{1}{4}$ inch. Which is closest to the volume of this rectangular prism?



F 4 in.^{3}
G 1.3 in.^{3}
H 8.5 in.^{3}
J 13.5 in.^{3}

April '06 Obj 8 - # 20

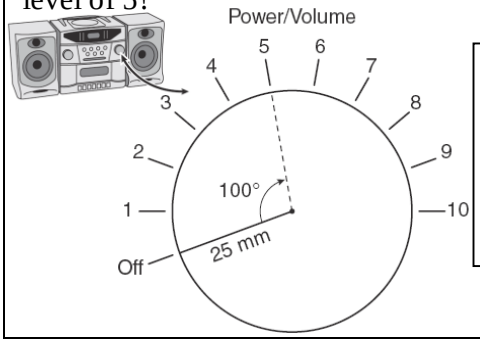
ΔWXY is isosceles. $\overline{WY}$ is 10 centimeters long. Find the length of $\overline{XZ}$.



F 5 cm
G 10 cm
H 12 cm
J 13 cm

April '06 Obj 8 - # 2

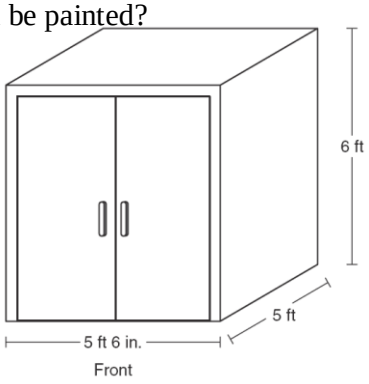
A diagram of a power/volume control knob on a stereo is shown below. When the stereo is turned on and the knob is turned to a volume level of 5, the knob is rotated 100° from its off position. What is the approximate arc length of the path traveled by the knob's rotation from the off position to a volume level of 5?



F 545 mm
G 157 mm
H 22 mm
J 44 mm

April '06 Obj 8 - # 22

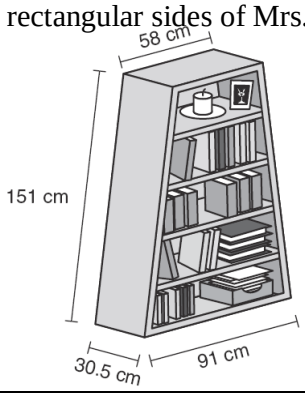
Henry built a wooden storage shed in the shape of a rectangular prism for his tools. The figure below shows the dimensions of the storage shed. If Henry plans to paint only the top, front, left, and right sides of his shed, which is closest to the surface area that will be painted?



A 121 ft^2
B 181 ft^2
C 154 ft^2
D 91 ft^2

April '06 Obj 8 - # 27

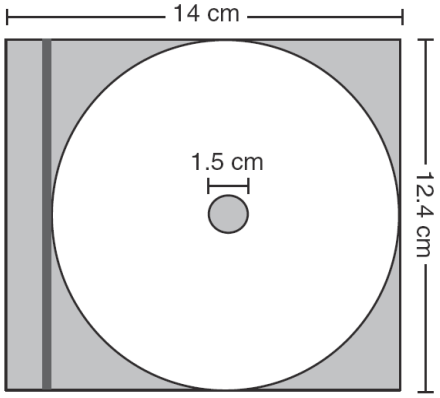
Mrs. Wong has a bookcase shaped like an isosceles trapezoid. The height of the bookcase is approximately 150 centimeters. The other dimensions are shown below. Which of the following is closest to the surface area of the top, left, and right rectangular sides of Mrs. Wong's bookcase?



A 11,000 cm^2
B 22,000 cm^2
C 36,000 cm^2
D 9,000 cm^2

Feb '06 Obj 8 - # 7

The figure below shows a CD in its rectangular storage case. Which is closest to the area of the storage case not occupied by the CD?



A 55 cm^2
B 46 cm^2
C 51 cm^2
D 60 cm^2

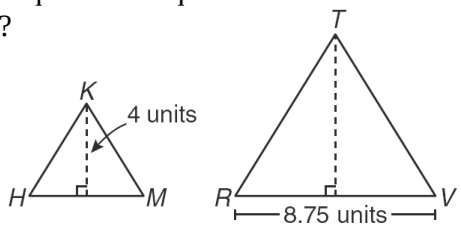
April '06 Obj 8 - # 35

Troy used chalk to outline a triangular plot of land in his backyard. The plot of land has a perimeter of 26 feet, with its longest side measuring 8 feet 10 inches. Troy wants to outline a second triangular plot of land similar to the first but with a perimeter of 42 feet. Which of these is closest to the measure of the longest side of the second triangular plot of land?

F 17 ft 2 in.
G 13 ft 1 in.
H 14 ft 3 in.
J 17 ft 11 in.

Feb '06 Obj 8 - # 14

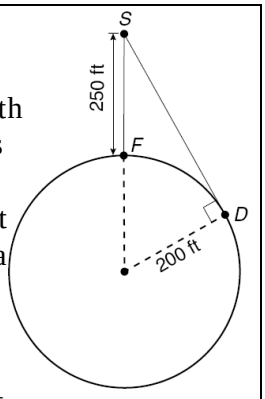
In the figures below, $\Delta HKM \sim \Delta RTV$, and the area of ΔHKM is equal to 10 square units. What is the area of ΔRTV?



A 30.625 square units
B 87.5 square units
C 21.875 square units
D 61.25 square units

April '06 Obj 8 - # 51

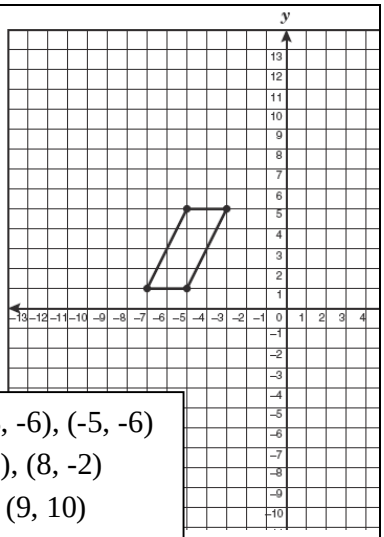
Mr. Krueger attended an event at the Good Time Sports Arena. The arena is in the shape of a circle with a radius of 200 feet. He parked his car in the lot at point *S*, which is 250 feet away from the entrance at point *F*. Mr. Krueger left the arena through the exit at point *D* and walked a straight-line path to his parked car. About how far away was his parked car from the exit at point *D*?



F 200 ft
G 403 ft
H 492 ft
J 650 ft

Feb '06 Obj 8 - # 16

A parallelogram is graphed on the grid. Which set of coordinates identifies the vertices of a similar figure?



F (-2, -1), (-4, -1), (-3, -6), (-5, -6)
G (0, -2), (0, -5), (8, 1), (8, -2)
H (1, 2), (1, 6), (9, 6), (9, 10)
J (-1, -1), (0, 3), (2, -1), (3, 3)

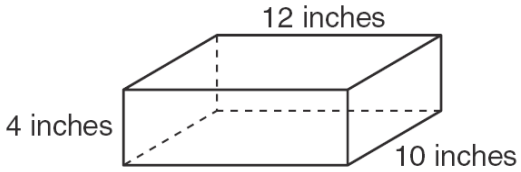
Feb '06 Obj 8 - # 30

A building-trades class built a circular spinner for the school carnival. The spinner has a diameter of 48 inches and is divided into 12 congruent sectors. What is the approximate area of each of the sectors on this spinner?

F 603 in.^{2}
G 151 in.^{2}
H 25 in.^{2}
J 13 in.^{2}

Feb '06 Obj 8 - # 56

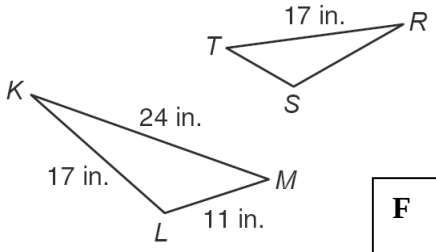
What is the volume of a similar rectangular box with dimensions that are 3.5 times larger than the dimensions of the rectangular box shown below?



F 5,880 in.^{3}
G 17,836 in.^{3}
H 20,580 in.^{3}
J 1,680 in.^{3}

Feb '06 Obj 8 - # 32

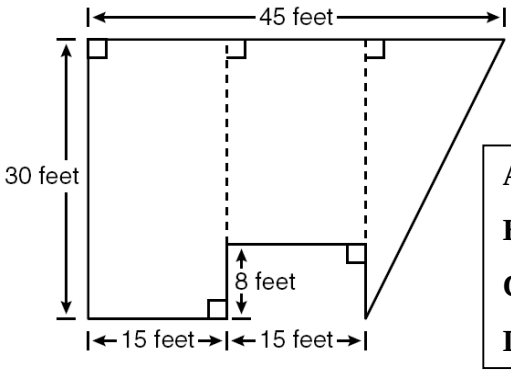
Look at the figures below. If $\Delta KLM \sim \Delta RST$, which is closest to the length of $\overline{ST}$?



F 15.52 inches
G 9.81 inches
H 7.79 inches
J 12.04 inches

Dec '06 Obj 8 - # 12

Linda has divided her garden into 3 parts, as shown below. What is the area of her garden?



A 1005 ft^2
B 1230 ft^2
C 1350 ft^2
D 1470 ft^2

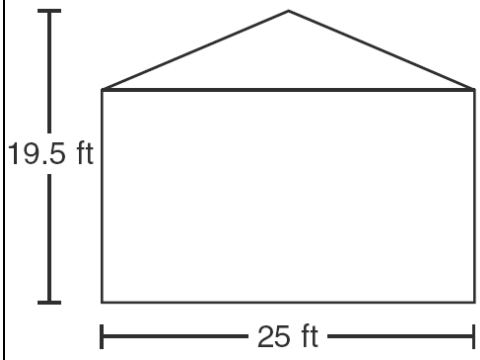
Feb '06 Obj 8 - # 47

Brandon wants to reduce a figure that is 9 inches tall and 16 inches wide so that it will fit on a 9-inch-by-12-inch piece of paper. If he reduces the figure proportionally, what is the maximum size the reduced figure could measure?

F 12 inches by $21\frac{1}{3}$ inches
G 9 inches by 12 inches
H $5\frac{1}{16}$ inches by 9 inches
J $6\frac{3}{4}$ inches by 12 inches

Dec '06 Obj 8 - # 38

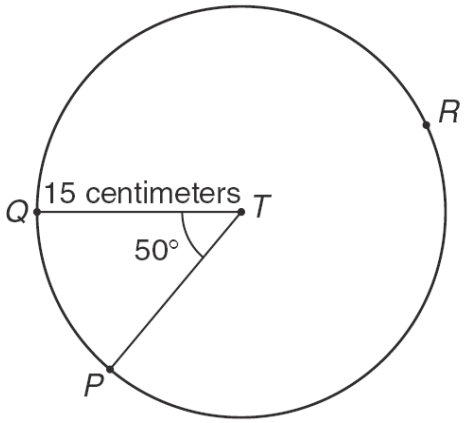
The figure below shows a triangle on top of a rectangle. If the area of the triangle is 83 square feet, which of the following best represents the area of the rectangle?



A 405 ft^2
B 239 ft^2
C 322 ft^2
D 166 ft^2

Dec '06 Obj 8 - # 43

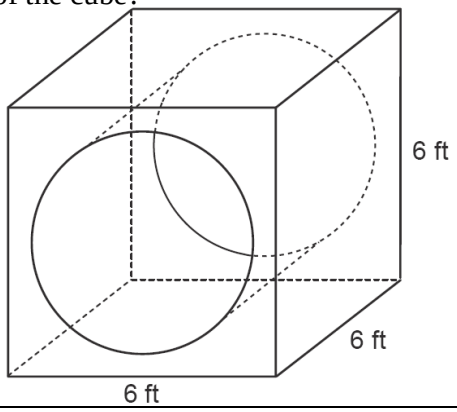
What is the approximate length of *PQ*?



A 13 cm
B 98 cm
C 94 cm
D 7 cm

Oct '06 Obj 8 - # 35

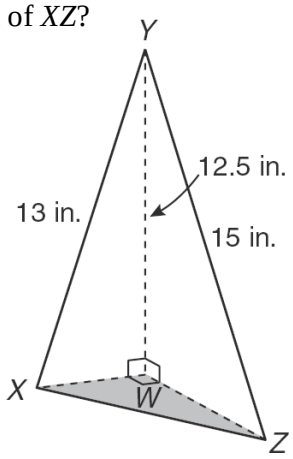
A cube-shaped piece of playground equipment has a cylindrical portion removed, as shown in the diagram. The diameter of the opening is 5 feet. What is the approximate volume of the remaining portion of the cube?



F 255 ft^3
G 122 ft^3
H 98 ft^3
J 28 ft^3

Dec '06 Obj 8 - # 46

The figure below shows three right triangles joined at their right-angle vertices to form a triangular pyramid. Which of the following is closest to the length of *XZ*?



F 7 inches
G 20 inches
H 12 inches
J 9 inches

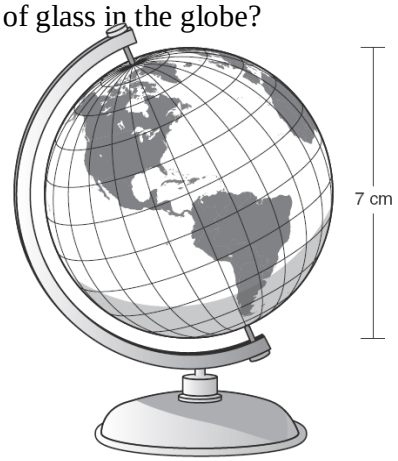
Oct '06 Obj 8 - # 40

The radius of a spherical beach ball is 24 centimeters. If another spherical beach ball has a radius 3 centimeters longer, about how much greater is its surface area, to the nearest square centimeter?

A 37 cm^2
B 113 cm^2
C 1,923 cm^2
D 24,542 cm^2

Dec '06 Obj 8 - # 55

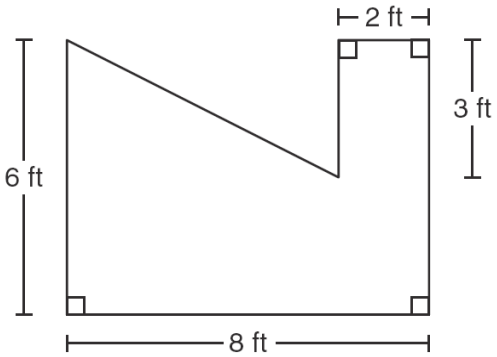
Mr. Martínez bought a solid-glass globe with a stand, as shown in the diagram below. If the diameter of the globe is 7 centimeters, which is closest to the volume of glass in the globe?



A 51 cm^3
B 180 cm^3
C 154 cm^3
D 101 cm^3

Oct '06 Obj 8 - # 41

The figure below shows the dimensions of a section of Mr. Green's garden that he will use for planting flowers. What is the area of Mr. Green's garden that he will use for planting flowers?



F 42 ft^2

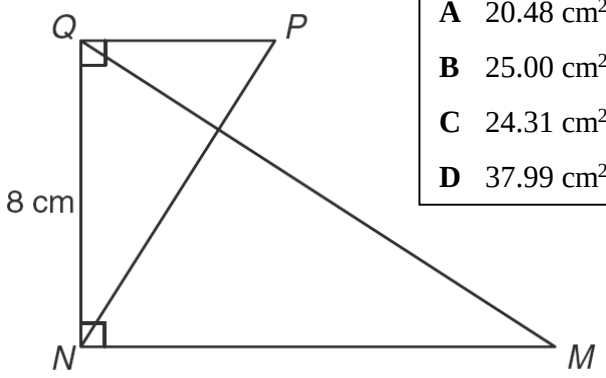
G 30 ft^2

H 39 ft^2

J 24 ft^2

Oct '06 Obj 8 - # 44

In the figure below, $\Delta QNM \sim \Delta PQN$, and $NM = 12.5$ centimeters. What is the area of ΔPQN?



A 20.48 cm^2

B 25.00 cm^2

C 24.31 cm^2

D 37.99 cm^2

Oct '06 Obj 8 - # 47