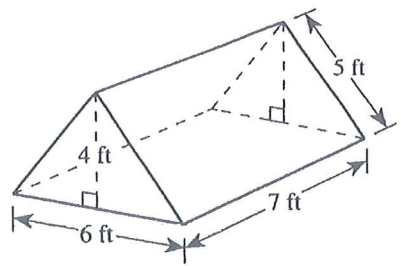


Name: Answer Key

Final Exam Prep Individual Practice

Surface Area Exercises

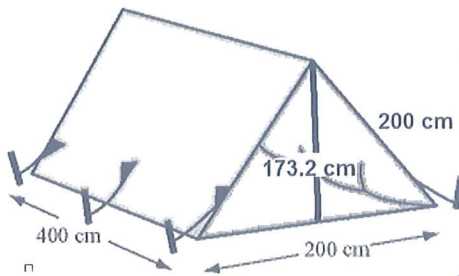
1. The bottomless tent illustrated below is in the shape of a right triangular prism and is made of nylon. How many square feet of nylon is required for the front, rear, and 2 sides of the tent?



Front: $\frac{1}{2} 6 \cdot 4$
 rear: $\frac{1}{2} 6 \cdot 4$
 2 sides: $2(5 \times 7)$

94 ft² of Nylon

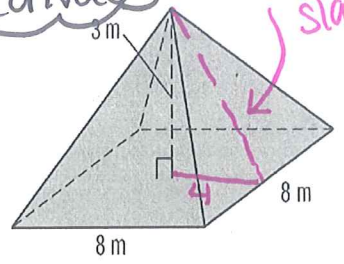
2. Find the amount of canvas required for the sides, floor, doors and window of the tent in the shape of a triangular prism as shown in the figure. The base of the prism is an equilateral triangle with sides 200 centimeters each.



2 Sides = $2(200 \times 400)$
 Front = $\frac{1}{2} 200 \times 173.2$
 Rear = $\frac{1}{2} 200 \times 173.2$
 floor = 400×200

274,640 cm² of Canvas

3. The diagram is a sketch for the casing for a firecracker that has a height of 3-meters and the base is a square pyramid. Ignoring overlap between faces of the casing, what is the amount of cardboard needed to create the casing (surface area), in square meters?



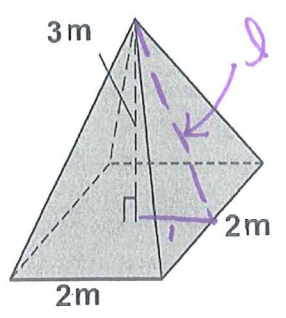
Find slant height:
 $3^2 + 4^2 = l^2$
 $l = 5m$

SA = 8×8
 $+ 4(\frac{1}{2} 8 \times 5)$
 SA = 144 m²

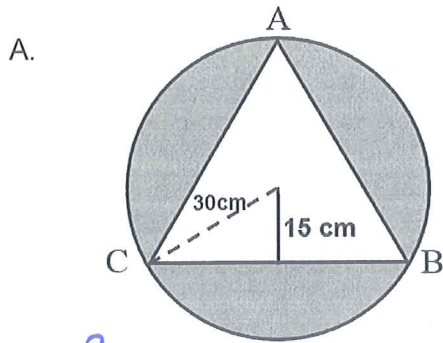
4. The diagram is a sketch for the Michigan News Casters Award that has a height of 3-meters and the base is a square pyramid. What is the amount of gloss paint needed to create the shine for the award (surface area), in square meters?

Find slant height:
 $1^2 + 3^2 = l^2$
 $\sqrt{10} = l$
 $3.2m = l$

SA = 2×2
 $+ 4(\frac{1}{2} 2 \times 3.2)$
 SA = 16.8 m²

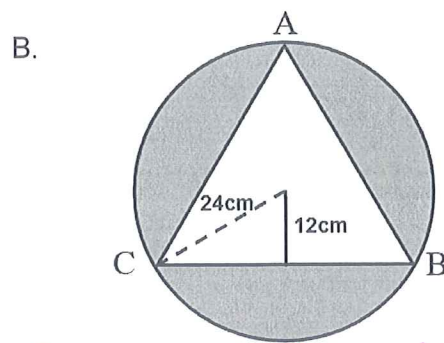


5. Extra Area Practice: If the information is given in centimeters, find the area of the shaded region.



$$A_s = \pi 30^2 - 3 \frac{1}{2} 30 \cdot 30 \sin(120)$$

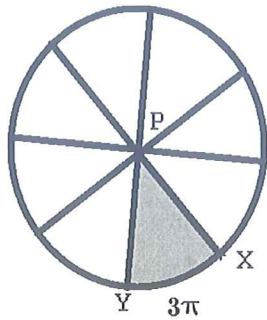
$$A_s = 1658.3 \text{ cm}^2$$



$$A_s = \pi 24^2 - 3 \frac{1}{2} 24 \cdot 24 \sin(120)$$

$$A_s = 1061.3 \text{ cm}^2$$

6. The length of arc XY of a circle is equal to $\frac{1}{8}$ of the circumference of the circle. The length of the arc is 5π inches. Find the central angle of the circle, in degrees. Find the radius, in inches, and then use that radius to find the area of the shaded sector, in square inches. If needed, round any answer to the nearest tenth.



$$\text{Central } \angle = \frac{360}{8} = 45^\circ$$

Radius

$$3\pi \times 8 = 24\pi = \text{Circumference}$$

$$24\pi = d\pi \rightarrow d = 24 \rightarrow \text{Radius} = 12 \text{ in}$$

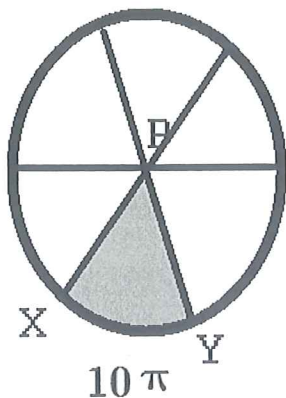
Sector

$$\frac{1}{8} \pi 12^2$$

$$\text{Central Angle } \angle XPY = 45^\circ$$

$$\text{Sector Area} = 56.5 \text{ in}^2$$

7. The length of arc XY of a circle is equal to $\frac{1}{6}$ of the circumference of the circle. The length of the arc is 10π inches. Find the central angle of the circle, in degrees. Find the radius, in inches, and then use that radius to find the area of the shaded sector, in square inches. If needed, round any answer to the nearest tenth.



Find Circumference

$$10\pi \times 6 = 60\pi$$

$$d\pi = 60\pi$$

$$d = 60$$

$$\frac{360}{6} = 60^\circ$$

$$\text{Central Angle } \angle XPY = 60^\circ$$

$$\text{Radius} = 30 \text{ in}$$

Sector

$$\frac{1}{6} \pi 30^2$$

$$\text{Sector Area} = 471.2 \text{ in}^2$$