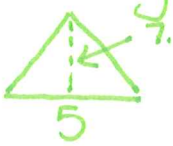
Name: Answer Key

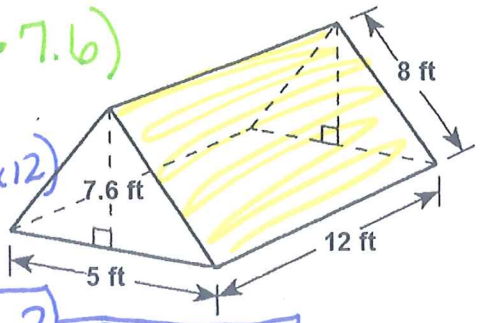
Final Exam Prep Practice

Surface Area Examples

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? SO NO ground part.

Front + Rear = $2(\frac{1}{2} 5 \cdot 7.6)$



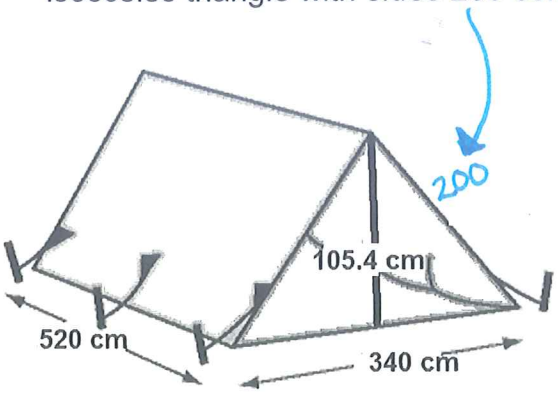


2 sides = $2(\square 8) = 2(8 \times 12)$ (12)

$A = 2(\frac{1}{2} 5 \times 7.6) + 2(8 \times 12)$

$A = 230 ft^2$ 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 isosceles triangle with sides 200 centimeters each.



2 sides $2(200 \times 520)$

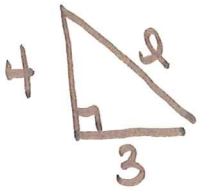
floor $+ 520 \times 340$

Front + Rear $+ 2(\frac{1}{2} 340 \times 105.4)$

420,636 cm^2 of canvas needed

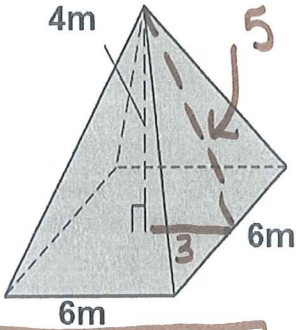
3. The diagram below is a sketch for the casing for a firecracker that has a height of 4-meters and the base is a square ~~pyramid~~. Ignoring overlap between faces of the casing, what is the amount of cardboard needed to create the casing (surface area), in square meters?

Find Slant height:



$4^2 + 3^2 = l^2$

$l = 5m$



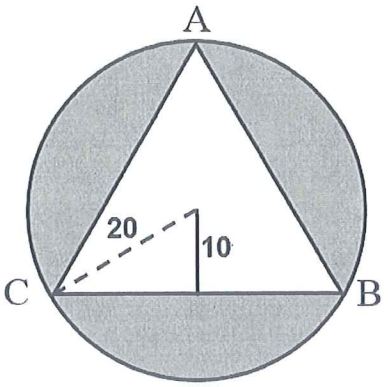
Surface Area: $6 \times 6 + 4(\frac{1}{2} 6 \times 5)$

$SA = 96 m^2$

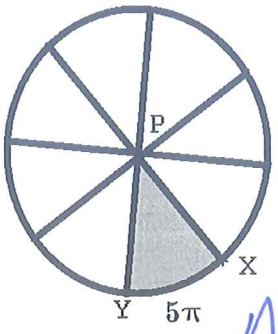
4. Extra Area Practice: If the information is given in centimeters, find the area of the shaded region.

$A_S = \pi 20^2 - 3\frac{1}{2} 20 \times 20 \sin(120)$

$A_S = 737.0\,cm^2$



5. 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.



$\frac{360}{8}$

Central Angle $\angle XPY =$ 45°

$5\pi \times 8 = C$

$40\pi = C$

$r = 20$ in

Radius = 20 in

$A = \frac{45}{360} 20^2 \pi$

Sector Area = $157.1\,in^2$

6. 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 12π 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.

Central Angle $\angle XPY =$ _____

Radius = _____

Sector Area = _____