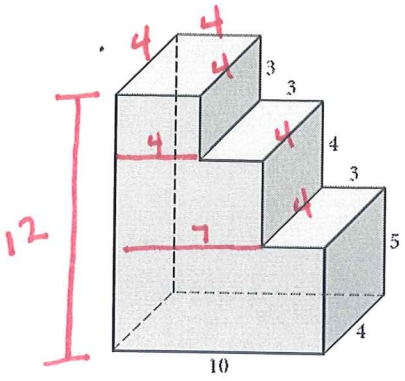
Name: Key Date: _____ HOUR: _____

Real World Applications Day 1 HW

Directions: Round to the nearest tenth.

1. Find the surface area of the following figure.



4×12 ← Back

$4 \times 4 + 3 \times 4 + 3 \times 4 + 3 \times 4 + 4 \times 4 + 5 \times 4$ ← Steps

10×4 ← Bottom

$2(5 \times 10) + 2(7 \times 4) + 2(3 \times 4)$ ← Front + Back

$SA = 356$ units^2

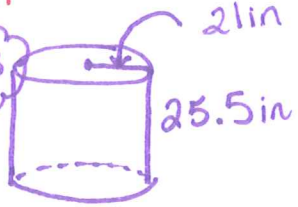
2. Mr. Gutierrez purchased a cylindrical aquarium for his office. The aquarium has a height of $25\frac{1}{2}$ inches and a radius of 21 inches. $1 ft^3 = 1728 in^3$

a. What is the volume of the aquarium in cubic feet?

$V = \pi (21)^2 \times 25.5$

$V = 35328.78 in^3 \div 1728$

$V = 20.4 ft^3$



b. If there are 7.48 gallons in a cubic foot, how many gallons of water does the aquarium hold?

20.4×7.48

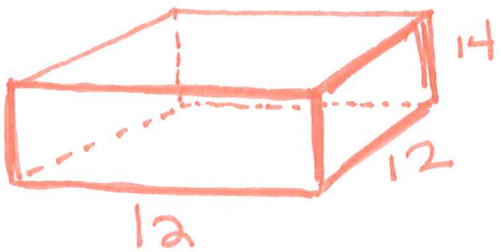
⇒ it holds 152.6 gallons of water.

c. If a cubic foot of water weighs about 62.4 pounds, what is the weight of the water in the aquarium to the nearest five pounds?

$20.4 \times 62.4 \Rightarrow 1272.96$ lbs

∴ Rounded 1275 lbs

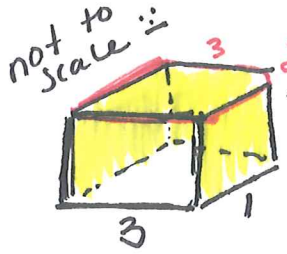
3. **DIGITAL CAMERA** The world's most powerful digital camera is located in New Mexico at the Apache Point Observatory. It is surrounded by a rectangular prism made of aluminum that protects the camera from wind and unwanted light. If the prism is 12 feet long, 12 feet wide, and 14 feet high, find its volume to the nearest cubic foot.



$V = (12 \times 12)14$

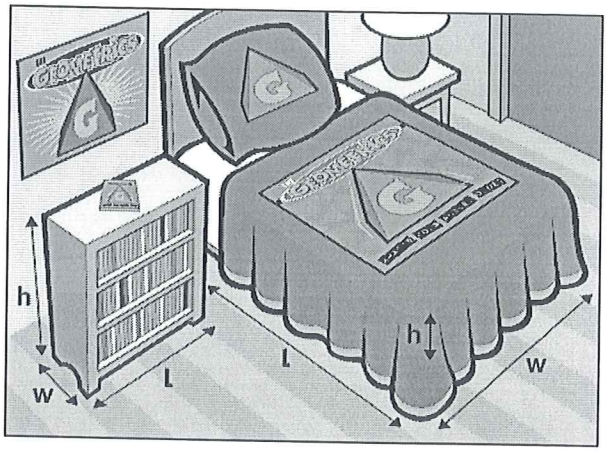
$V = 2016 ft^3$

4. You have a CD rack at home, which is a rectangular prism that measures 3 feet long by 3 feet high with a width of 1 foot. How many square feet would you be painting to cover the two sides, the top, and the back?



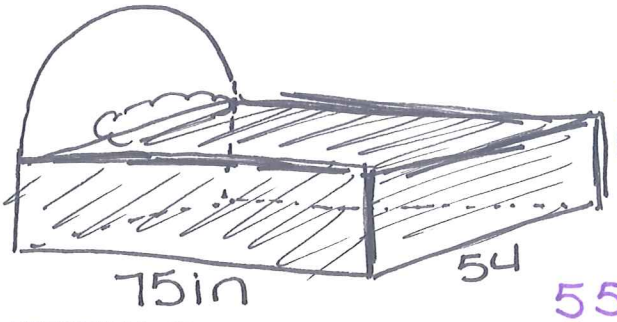
Top: 3×1
2 sides: $2(3 \times 1)$
Back: 3×3

$SA = 18 ft^2$



Picture for #5

5. The Geometrics Stage Crew is selling cover sheets for beds that have the band's logo on them. A full-size mattress measures 54 inches wide by 75 inches long by 6 inches high. If the sheet were to cover all but the bottom of the mattress, what is the minimum total surface area? State your answer in square feet.



$2(6 \times 54)$
$2(6 \times 75)$
$+ 1(75 \times 54)$

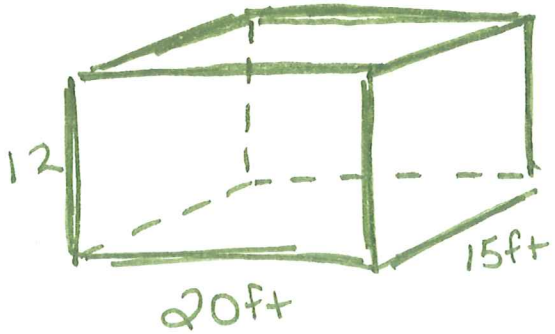
$SA = 5,598 in^2$

↖ In real life we usually don't cover the side by the head board.

Convert to ft^2 by dividing by 144

$5598 \div 144$ $SA = 38.9 ft^2$

6. **PAINTING** Eva and Casey are planning to paint the walls and ceiling of their living room. The room is 20 feet long, 15 feet wide, and 12 feet high. Find the surface area to be painted.



Walls: $2(12 \times 15) + 2(12 \times 20)$
Ceiling: $+ 20 \times 15$

SA to be painted:

$SA = 1380 ft^2$