A construction worker has just finished building a house and now it is time to paint it. The largest room in the house is basically a **rectangular prism**, which looks like this:

length = 20 feet

width = 15 feet

height = 10 feet

a) How many "sides/faces" does the rectangular prism have?

b) How many of those "sides/faces" need to get painted?

c) What mathematical concept is being used if we think about painting the "sides/faces" of the room?

d) If each gallon of paint can cover 200 square feet, how many gallons are needed to paint the entire room?

e) If each gallon of paint costs $27.00, how much money would it take to paint the entire room?

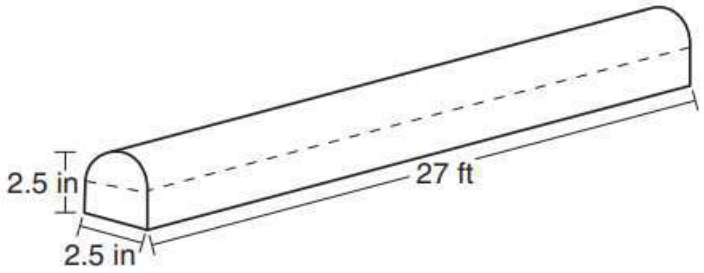
f) If instead we were to pour the paint into the room, what mathematical concept is that applying?

g) If we were to fill the room with paint (which is a bad idea…) how many gallons of paint would be needed (assume each gallon of paint is roughly 2 cubic feet of paint)?

A gallon of paint will cover approximately 450 square feet. An artist wants to paint all the outside surfaces of a cube measuring 12 feet on each edge. What is the *least* number of gallons of paint he must buy to paint the cube?

(1) 1
(2) 2
(3) 3
(4) 4

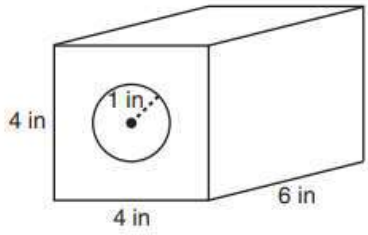
A fabricator is hired to make a 27-foot-long solid metal railing for the stairs at the local library. The railing is modeled by the diagram below. The railing is 2.5 inches high and 2.5 inches wide and is comprised of a rectangular prism and a half-cylinder.



How much metal, to the *nearest cubic inch*, will the railing contain?

(1) 151
(2) 795
(3) 1808
(4) 2025

A solid metal prism has a rectangular base with sides of 4 inches and 6 inches, and a height of 4 inches. A hole in the shape of a cylinder, with a radius of 1 inch, is drilled through the entire length of the rectangular prism.



What is the approximate volume of the remaining solid, in cubic inches?

(1) 19
(2) 77
(3) 93
(4) 96