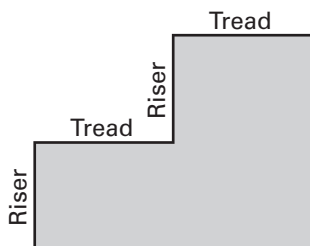


LESSON
2.3**Math and History Application***For use with the lesson "Solve Two-Step Equations"*

History François Blondel was born in Ribemont, France, in 1618 and died in 1686. During his life, Blondel held a variety of positions that increased his experiences in the fields of engineering and architecture. At seventeen, he joined the infantry and fought in the Thirty Years' War. During this time in the military, he held positions in naval engineering. In 1663 Blondel became Commissioner General of the Navy. As commissioner, he drew plans for towns, directed construction and restoration of bridges, and helped locate a harbor for the Navy.

In 1666 Blondel was sent to the West Indies to look for harbors, make maps, and plan fortifications. He was appointed as a professor and director of the Royal Academy of Architecture in Paris in 1671. In 1672, Louis XIV placed Blondel in charge of public works for the city of Paris.

Math Blondel wrote a book titled *Cours d'Architecture* in which he formulated a rule for building stairs. He stated, "The length of the normal step of man walking on level ground is two feet, and the distance between steps on a perpendicular ladder is one foot." From this observation, he developed the rule that a well-balanced staircase is $2R + T = 24$ inches (25.5 in today's inches), where R = riser height and T = tread width. This rule was approved by the Royal Academy of Architecture in 1675. This rule has been called Blondel's Rule.



1. Measure the risers and treads of three different stairways. Do the risers and treads fall within Blondel's Rule?
2. The New York Road Runners Club organizes an annual Empire State Building Run-up. The event usually includes about 150 people running up 86 flights of stairs in the Empire State Building. There are 1576 steps in the ascent of 1050 feet. Using Blondel's rule, find the riser height and the tread width in inches.
3. Sketch and label an individual stair of the Empire State Building's staircase. Compare the Empire State Building's staircase to a traditional staircase (8.25-inch riser and a 9-inch tread). Which staircase is steeper?