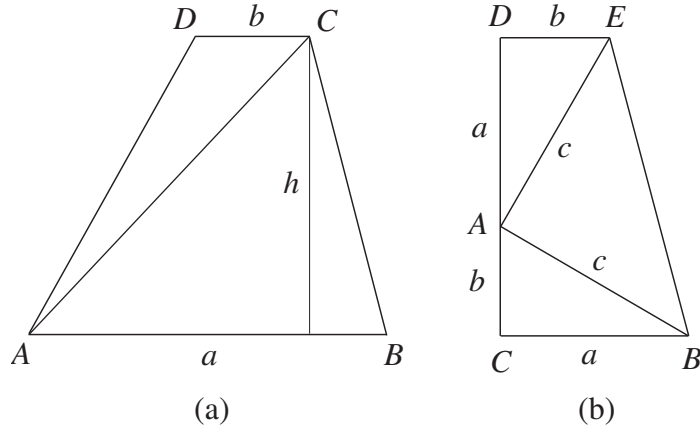


Quiz

Name

1a. Figure a below depicts a typical trapezoid $ABCD$ of height h and one of its diagonals AC . Use this figure to show that the area of this trapezoid is $\frac{1}{2}(a + b)h$.



1b. Consider a right triangle $\triangle ABC$. Use an identical copy $\triangle ADE$ of this triangle to form the trapezoid shown in Figure b. Show that $\angle EAB$ is right angle and use Figure b to verify the Pythagorean theorem for the triangle $\triangle ABC$.

2. Suppose that the distance from the focal point F to the directrix is 4. Cut the parabola parallel to the directrix at a distance of 7 units from the directrix. Identify the vertex of the resulting parabolic section. State Archimedes's theorem and use it to determine the area of this parabolic section.