

Geometry Works!

The Stage Takes Shape

The popular band The Geometrics wants to play a special concert at your school, but they need a stage crew to help. The first step for the Geometrics Stage Crew is **building an elaborate stage featuring differently shaped sections.**



- 1** First, they want a main stage that is rectangular-shaped, measuring a length of 24 feet and a width of 16 feet. What are the perimeter and area of that stage?

Perimeter:

Area:

- 2** Second, the band's lead guitarist wants the Geometrics Stage Crew to build a smaller circular stage in front of the main stage that he can step onto and play a solo. The diameter has to be one-third of the length of the main stage. What is the circumference and area? Round your answer to the nearest foot.

Circumference:

Area:

- 3** The bass player has a thing for triangles and sees herself on a triangular platform off to the left of the stage. When viewed from above, the right triangle has a height of 8 feet, a base of 6 feet, and a third side (called the *hypotenuse*) of 10 feet. What is the perimeter and area?

Perimeter:

Area:

BONUS:

The drummer wants to be on a raised trapezoid-shaped platform.

This requires the Geometrics Stage Crew to learn a new formula for the area of trapezoids [$A = 1/2 \cdot (b_1 + b_2) \cdot h$]. The trapezoid is shown in the diagram here with the measurements indicated. Base 1 (b_1) = 8 feet. Base 2 (b_2) = 5 feet. The height measures 6 feet. What is the area?

