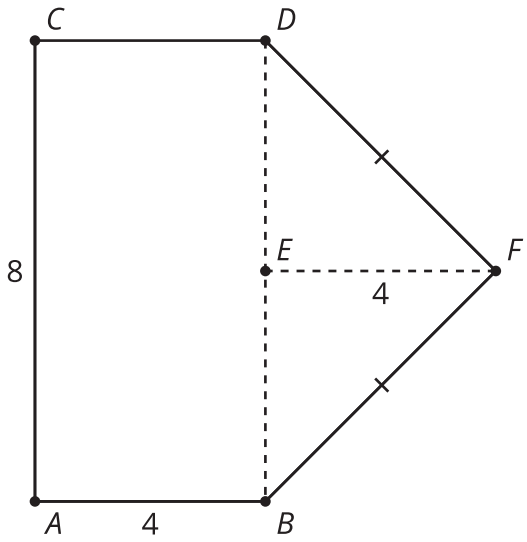
Scaling a Playground

Task Statement 1

Here's a playground for a school of 360 children in Springfield.

1 unit = 10 yards



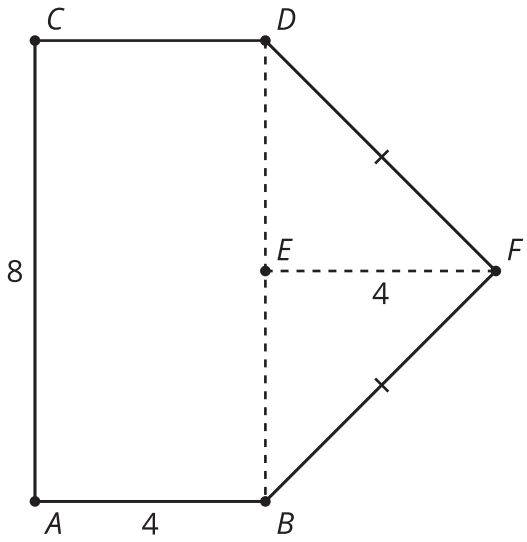
1. The fence around the playground costs 90 dollars per 50-foot roll. Laying 1-foot squares of sod across the area costs 400 dollars per 500 square feet. How much does the fencing and the grass for this playground cost?
2. How many children per square yard can Springfield's playground hold?
3. There's a new playground going up in nearby Wintermeadow, which has a budget about 3 times greater than Springfield's. Recommend a playground shape and size that would fit Wintermeadow's budget and hold at least 3 times as many children as Springfield's playground at the same density of children per square yard. How many children can your recommended playground hold?

Scaling a Playground

Task Statement 2

Here's a playground for a school of 360 children in Springfield.

1 unit = 10 yards



1. The fence around the playground costs 90 dollars per 50-foot roll. Laying 1-foot squares of sod across the area costs 400 dollars per 500 square feet. How much does the fencing and the grass for this playground cost?
2. There's a new playground going up in nearby Wintermeadow, which has a budget about 3 times greater than Springfield's. Wintermeadow is building a playground by scaling up Springfield's playground dimensions by a factor of 3. Calculate the cost of the grass and the fencing for a playground that has been dilated, using a scale factor of 3. Will Wintermeadow's budget cover the costs?
3. How many children could play on the playground that is scaled up from Springfield's playground by a factor of 3, at the same density of children per square yard?
4. Recommend a playground shape and size that would fit Wintermeadow's budget and hold at least 3 times as many children as Springfield's playground. How many children can your recommended playground hold?