

**1.**

Dave wants to cut a 20-foot-long piece of wood into pieces that are either 5 feet, 4 feet, or 2 feet long. He must have at least one of each length and have no wood left over.

What is the greatest number of pieces he can cut from this piece of wood?

**Answer** \_\_\_\_\_ pieces

On the lines below, explain the process you used to arrive at your answer.

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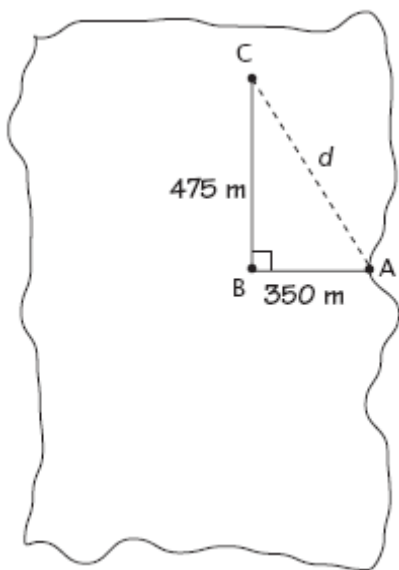
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**2.**

Jimmy and his uncle left the shore in their boat from point A and continued on this course for 350 meters until they reached point B. After fishing there for awhile, they made a 90-degree turn and continued for 475 meters to point C. The diagram below shows the course they took and the locations of the two different fishing spots on the lake.



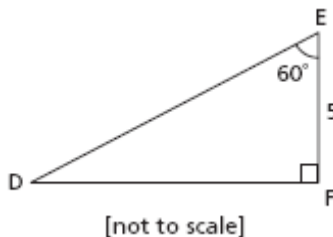
What is the approximate distance,  $d$ , they will travel from point C to get back to point A?

**Show your work.**

**Answer** \_\_\_\_\_ meters

**3.**

The diagram below shows right triangle DEF.



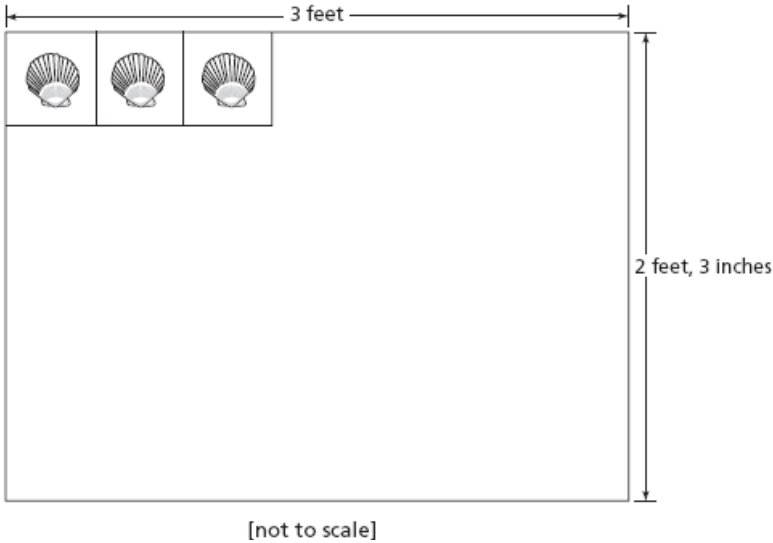
If angle E measures  $60^\circ$ , what is the length of side DE?

**Show your work.**

**Answer** \_\_\_\_\_

**4.**

The students in Ms. Lewis's class have seashell decals to put around the border of their ocean project bulletin board, as shown below.

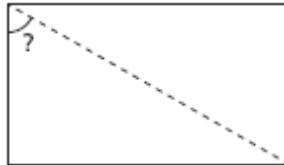


Each paper decal is 4.5 inches long and 4.5 inches wide. How many decals will it take to complete the border of the bulletin board?  
**Show your work.**

**Answer** \_\_\_\_\_decals

**5.**

Brady drew a rectangle and then drew a diagonal in that rectangle as shown below.



When Brady measured the width of the rectangle and the length of the diagonal, he found that the diagonal is twice as long as the width.

**Part A**

Express the width of the rectangle and the measure of the diagonal in terms of  $x$ .

**Width** \_\_\_\_\_ **Diagonal** \_\_\_\_\_

**Part B**

On the lines below, explain how Brady can find the measure of the angle formed by the width of the rectangle and the diagonal.

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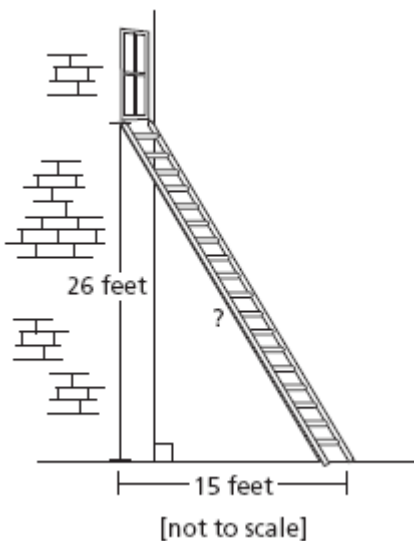
**Part C**

If the width of the rectangle is 4 inches, find the measure of the angle formed by the width of the rectangle and the diagonal.

**Answer** \_\_\_\_\_degrees

**6.**

A window washer leans a ladder up against a wall so that the top of the ladder touches the base of the window, as shown below. The bottom of the ladder is 15 feet from the wall, and the base of the window is 26 feet from the ground.



What is the length of the ladder to the **nearest** foot?

**Show your work.**

**Answer** \_\_\_\_\_ feet

**7.**

The city planning department wants to build a rectangular playing field in one of its parks.

The perimeter of the entire field will be fenced, and the total area of the field will be 1,200 square feet.

**Part A**

If the length and the width can only be whole numbers, what dimensions for the playing field will require the minimum number of feet of fencing?

**Show your work or explain in words.**

**Dimensions** \_\_\_\_\_ feet by \_\_\_\_\_ feet

What is the perimeter of the playing field with the minimum number of feet of fencing?

**Perimeter** \_\_\_\_\_ feet

**8.**

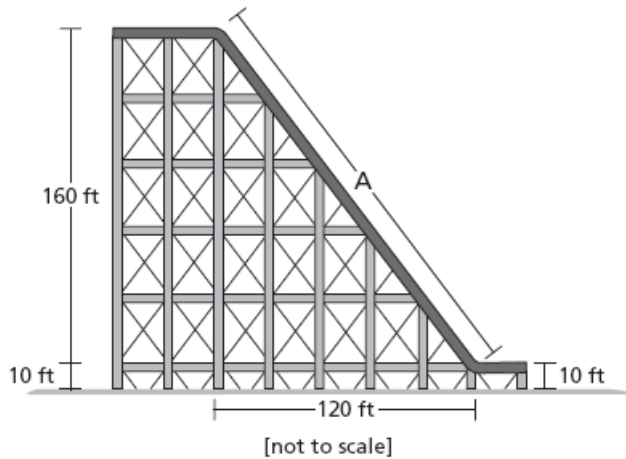
Annette's family is going to tile a 9-foot by 12-foot section of their home's entryway. Each individual tile has an area of 1.5 square feet. If each tile costs \$2.25, what would be the total cost of tiles for the entryway?

**Show your work.**

**Answer** \$ \_\_\_\_\_

**9.**

The roller coaster at an amusement park reaches a height of 170 feet before it drops down a slope to a point 10 feet above ground level, in a horizontal distance of 120 feet, as shown below.



What is the approximate length of the track, in feet, of the section of the roller coaster labeled A?

**Show your work.**

**Answer** \_\_\_\_\_ feet

**10.**

All the telephone poles in a certain area are 30 feet tall. The distance from the top of one telephone pole to the base of the next telephone pole is 50 feet.

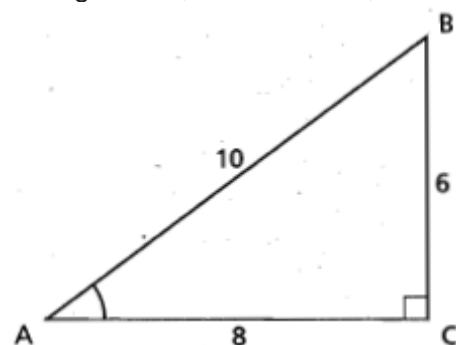
What is the number of feet between the two telephone poles?

**Show your work or explain in words.**

**Answer** \_\_\_\_\_

**11.**

Triangle ABC, shown below, is a right triangle.



What are the numerical values of cosine and tangent of angle A?

**Cosine A** \_\_\_\_\_

**Tangent A** \_\_\_\_\_