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Warm-Up!

1. What is the circumference of a circle with radius 12 inches?

2. The circles in the diagram below are tangent, meaning they only touch at one point. Each circle has radius 0.4 inches. The line segment is tangent to both circles, and each endpoint of the segment is on one of the circles. What is the length of the line segment in inches?
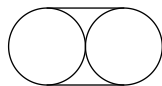

The Problem
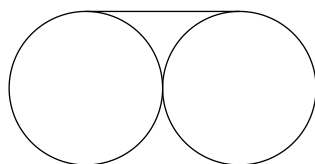
First Problem: A belt is drawn tightly around three circles of radius 10 cm each, as shown below. What is the length of the belt in cm?
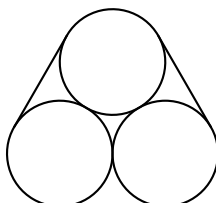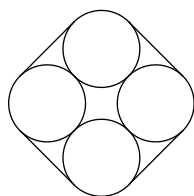
4. A belt is drawn tightly around two circles of radius 10 cm each, as shown below. What is the length of the belt in cm?

5. A belt is drawn tightly around four circles of radius 10 cm each, as shown below. What is the length of the belt in cm? (The centers of the circles are the vertices of a square.)

6. A belt is drawn tightly around six circles of radius 10 cm each, as shown below. What is the length of the belt in cm? (The centers of the circles are the vertices of a regular hexagon.)