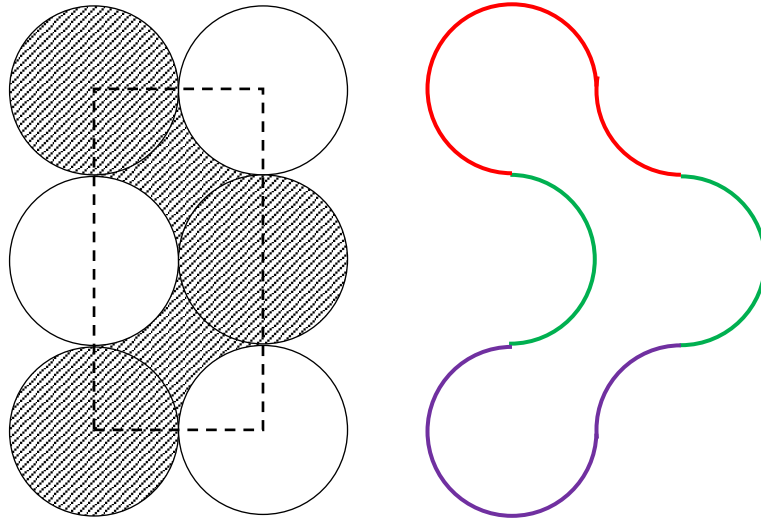In the figure, each circle has a radius of 7 cm. If we connect the centre of each circle with straight lines, it forms a rectangle as shown in the figure. Answer each of the following questions.

a) Find the perimeter of shaded part.

b) Find the area of the shaded part. Take π as $\frac{22}{7}$.

<< Area & Perimeter >>

<Writing>

Red arcs make 1 circumference.
Green arcs make 1 circumference.
Purple arcs make 1 circumference.
Perimeter of shaded part = 3 circumferences

$7 \times 2 = 14$ (cm) $\qquad \rightarrow$ Diameter

$14 \times \frac{22}{7} \times 3 = 132$ (cm) $\qquad \rightarrow$ a) Perimeter

Shaded part = 3 circles + 2 ✦
1 square − 1 circle = ✦

$7 \times 7 \times \frac{22}{7} = 154$ (cm^2) $\qquad \rightarrow$ 1 circle

$14 \times 14 − 154 = 42$ (cm^2) $\qquad \rightarrow$ 1 ✦

$42 \times 2 = 84$ (cm^2) $\qquad \rightarrow$ 2 ✦

$154 \times 3 + 84 = 546$ (cm^2) $\qquad \rightarrow$ b) Shaded part

Answer a) 132 cm   b) 546 cm^2

SAKAMOTO METHOD
サカモト式