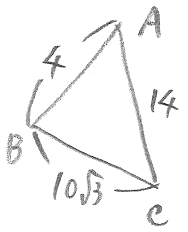
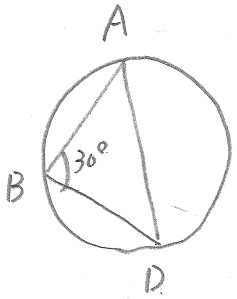
2018年　30年　I+A　追試

第2問 [1]



$$\cos B = \frac{16+300-196}{2\cdot 4\cdot 10\sqrt{3}} = \frac{\sqrt{3}}{2}$$

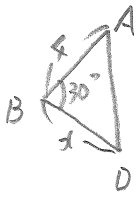


ADはRと等しい

$\frac{AD}{R} = 1$

$\min R = \min AD$

$BD = x$ とおくと



$$AD^2 = 4^2 + x^2 - 2\cdot 4\cdot x\cdot \cos 30°$$
$$= 16 + x^2 - 4\sqrt{3}x$$
$$= x^2 - 4\sqrt{3}x + 16$$
$$= (x-2\sqrt{3})^2 + 16 - 12$$
$$= (x-2\sqrt{3})^2 + 4$$

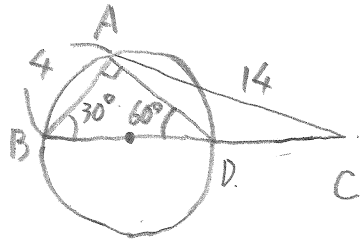
$x = 2\sqrt{3}$ で $\min AD^2 = 4$

$\min AD = 2$

ア.イ … 3.2

ウ … 1

エ … 2



$\angle A = 90°$

$$BD = 4\times\frac{2}{\sqrt{3}} = \frac{8}{\sqrt{3}} = \frac{8}{3}\sqrt{3}$$

$$R = \frac{4}{3}\sqrt{3}$$

$$\triangle ADC = \triangle ABC - \triangle ABD$$
$$= \frac{1}{2}\cdot 4\cdot 10\sqrt{3}\cdot\frac{1}{2} - \frac{1}{2}\cdot 4\cdot\frac{8}{3}\sqrt{3}\cdot\frac{1}{2}$$
$$= 10\sqrt{3} - \frac{8}{3}\sqrt{3}$$
$$= \frac{22}{3}\sqrt{3}$$

オ.カ.キ … 4.3.3

ク.ケ.コ.サ … 2.2.3.3