۱)

$$\frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{\frac{۲۰\sqrt{۹}}{۳}}{\sin(۱۲۰-x)} = \frac{۲۰}{\sin x}$$

$$\sin x = \frac{\sin(۱۲۰-x)}{\frac{\sqrt{۹}}{۳}}$$

۲)

$$۱۸۰-(۷۵+۹۰) = ۴۵$$

$$\frac{۲\sqrt{۲}}{\sin ۴۵} = \frac{y}{\sin ۹۰} \qquad \frac{۲\sqrt{۲}}{\frac{\sqrt{۲}}{۲}} = \frac{y}{\frac{\sqrt{۳}}{۲}} \qquad y = ۲\sqrt{۳}$$

$$\frac{\sqrt{۳}}{۲} \times ۲\sqrt{۳} = ۳ = x$$

۳)

$$\frac{b}{\sin B} = \frac{c}{\sin C} \qquad \sin C = \frac{c \sin B}{b}$$

$$\frac{(b^۲-۲)(۶)(\sin B)}{b} = ۶ \qquad (\frac{b^۲-۲}{b})\sin B = ۱$$

$$\sin B = \frac{b}{b^۲-۲}$$

۴)

$$(۱۳)^۲ = (۲۱)^۲ + (۲۰)^۲ - ۲(۲۱)(۲۰)\cos B$$

$$۱۶۹ = ۴۴۱ + ۴۰۰ - ۸۴۰ \cos B$$

$$۸۴۰ \cos B = ۴۷۲ \qquad \cos B = \frac{۸}{۱۵} \qquad \sin B = \frac{۹}{۱۵}$$

= d

$a^2 = b^2 + c^2 - 2bc\cos a$

$a^2 = 16 + (2(1+\sqrt{3}))^2 - 16(1+\sqrt{3})\cos 90 =$

$a^2 = 16 - 8\sqrt{3} \qquad a = \sqrt{16 - 8\sqrt{3}}$

= 9

= V

$CB^2 = 49 + 25 - 2(8)(5)\cos 90 = 49 \qquad BC = 7$

$S_{ABC} = \frac{1}{2} \times 8 \times 5 \times \sin 90 = 4 \times 5 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

= 8

$b^2 + c^2 + 2bc - (b^2 + c^2 - 2ab\cos\theta) = 2bc\cos\theta$

$a^2 = b^2 + c^2 - 2ab\cos\theta$

$\frac{2bc\cos\theta}{bc(\cos A + 1)}$

$\frac{2\cos A}{\cos A + 1}$

= 9

$a^3 + b^3 - c^3 = a^3 + a^2 b - ca^2$

$b^3 - a^2 b + ca^2 - c^3 = b^3 - c^3 - a^2(b-c)$

$-a^2(b-c) \qquad (b-c)(b^2 + c^2 + bc - a^2)$

$b^2 + c^2 - 2bc$

$(b-c)(bc + 2bc\cos A)$

= 10

$\frac{(3 - \cos\theta)(1 + 2\cos\theta)(\sin 2\theta)}{2}$ = 2

۴— $4\cos^2\theta - \cos\theta + 9\cos\theta = 8$

$-4\cos^2\theta + 8\cos\theta + 4 = 8$

$\cos^2\theta - 8\cos\theta + 15 = 0$

$(\cos\theta - 5)(\cos\theta - 3) = 0$

$4\cos^2\theta - 8\cos\theta + 60$

$\cos\theta = 1$

$\cos\theta = \frac{5}{3}$ ✗ غ ق ق