

$$9. \text{ 令 } x = \sqrt[3]{2}$$

$$\therefore (X+1)^3$$

$$= X^3 + 3X^2 + 3X + 1$$

$$= 3(X^2 + X + 1)$$

兩邊同乘 $X-1$

$$(X+1)^3(X-1)$$

$$= 3(X^2 + X + 1)(X-1)$$

$$= 3(X^3 - 1)$$

$$= 3(2-1)$$

$$= 3$$

$$\therefore X - 1 = \frac{3}{(X+1)^3}$$

$$\therefore \sqrt[3]{\sqrt[3]{2} - 1}$$

$$= \sqrt[3]{X - 1}$$

$$= \frac{\sqrt[3]{3}}{X+1}$$

$$= \frac{\sqrt[3]{3}(X^2 - X + 1)}{(X^2 - X + 1)(X+1)}$$

$$= \frac{\sqrt[3]{3}(\sqrt[3]{4} - \sqrt[3]{2} + 1)}{X^3 + 1}$$

$$= \frac{\sqrt[3]{3}(\sqrt[3]{4} - \sqrt[3]{2} + 1)}{3}$$

$$= \frac{\sqrt[3]{4} - \sqrt[3]{2} + 1}{\sqrt[3]{9}}$$

$$= \sqrt[3]{\frac{4}{9}} + \sqrt[3]{-\frac{2}{9}} + \sqrt[3]{\frac{1}{9}}$$

$$\text{因此 } a+b+c = \frac{4}{9} - \frac{2}{9} + \frac{1}{9} = \frac{1}{3}$$