[9]

$$\lim_{x\to -8}\frac{\sqrt{1-x}-3}{2+\sqrt[3]{x}}=(1)$$

$$\lim_{x\to -8}\sqrt{1-x}-3=\left(\sqrt{1-x}-3\right)_{x=-8}=$$

$$=\sqrt{1-(-8)}-3=\sqrt{1+8}-3=\sqrt{9}-3=3-3=0$$

$$\lim_{x\to -8}\left(2+\sqrt[3]{x}\right)=\left(2+\sqrt[3]{x}\right)_{x=-8}=$$

$$=2+\sqrt[3]{-8}=2+\sqrt[3]{(-2)^3}=2+(-2)=2-2=0$$

$$(1)=\left(\frac{0}{0}\right)$$

$$a^2-b^2=(a-b)(a+b)$$

$$a^3+b^3=(a+b)(a^2-ab+b^2)$$

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

$$\left(\sqrt{1-x}-3\right)\left(\sqrt{1-x}+3\right)=\left(\sqrt{1-x}\right)^2-3^2=1-x-9=-x-8=-(x+8)$$

$$\left(2+\sqrt[3]{x}\right)\left(2^2-2\sqrt[3]{x}+\left(\sqrt[3]{x}\right)^2\right)=2^3+\left(\sqrt[3]{x}\right)^3=8+x=x+8$$

$$(2)=\frac{-(x+8)}{x+8}\,\frac{4-2\sqrt[3]{x}+\left(\sqrt[3]{x}\right)^2}{\sqrt{1-x}+3}=\{x+8\neq 0;\ x\neq -8\}=$$

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

$$(1) = \lim_{x \to -8} -\frac{4 - 2\sqrt[3]{x} + (\sqrt[3]{x})^2}{\sqrt{1-x} + 3} =$$

$$= \left(-\frac{4 - 2\sqrt[3]{x} + (\sqrt[3]{x})^2}{\sqrt{1-x} + 3}\right)_{x=-8} =$$

$$= -\frac{4 - 2\sqrt[3]{-8} + (\sqrt[3]{-8})^2}{\sqrt{1-(-8)} + 3} = -\frac{4 - 2\sqrt[3]{(-2)^3} + (\sqrt[3]{(-2)^3})^2}{\sqrt{3^2} + 3} =$$

$$= -\frac{4 - 2(-2) + (-2)^2}{3+3} = -\frac{4+4+4}{3+3} = -\frac{12}{6} = -2$$

$$\boxed{\lim_{x \to -8} \frac{\sqrt{1-x} - 3}{2 + \sqrt[3]{x}} = -2}$$