

$$\sin 135^\circ = \sin 45^\circ = \frac{\sqrt{2}}{2} \quad \cos 135^\circ = \cos 45^\circ = -\frac{\sqrt{2}}{2}$$

$$\sin 30^\circ = -\sin 6^\circ = -\frac{\sqrt{3}}{2} \quad \cos 150^\circ = -\cos 30^\circ = -\frac{\sqrt{3}}{2}$$

$$\frac{\sqrt{2}-\sqrt{3}}{2} \times \frac{\sqrt{2}+\sqrt{3}}{2} = \frac{2-3}{4} = -\frac{1}{4} \quad \checkmark \quad \frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2} = \frac{\sqrt{2}+\sqrt{3}}{2}$$

$$\tan 75^\circ = \tan(45^\circ+30^\circ) = \tan 75^\circ = \frac{1}{\sqrt{3}}$$

$$\cos 135^\circ = \cos(90^\circ+45^\circ) = \cos 45^\circ = \frac{\sqrt{2}}{2}$$

$$\cos 120^\circ = \cos(90^\circ+30^\circ) = -\frac{\sqrt{3}}{2}$$

$$\frac{1+3 \times \frac{1}{\sqrt{3}}}{2 \times \frac{\sqrt{3}}{2} + 2 \times \frac{1}{\sqrt{3}}} = \frac{1+1}{\sqrt{3}+1} = \frac{2}{\sqrt{3}+1} = \frac{1}{2} \quad \checkmark$$

$$AB = \sqrt{5} \quad AC = AB^2 + BC^2 - 2(AB)(BC) \cos \theta$$

$$AC = 2\sqrt{3} \quad (\sqrt{3})^2 = (\sqrt{5})^2 + 2^2 - 2(\sqrt{5})(2) \cos \theta \quad BH = AB(\cos 45^\circ)$$

$$DC = x \quad 12 = 5 + 4 - 2\sqrt{3}x \quad \sqrt{5} \times \frac{\sqrt{3}}{2} = \sqrt{3} \quad 2 + \sqrt{3} - \sqrt{3} = \boxed{2}$$

$$12 = 9 + x^2 - 2\sqrt{3}x \quad (x = 3 + \sqrt{3})$$

$$AD = \sqrt{5} \quad AH = HC \tan 75^\circ = 9 \times \frac{1}{\sqrt{3}} = 3\sqrt{3}$$

$$HC = 9 \quad AB^2 = AH^2 + BH^2 = (3\sqrt{3})^2 + (3\sqrt{3})^2 = 54 \Rightarrow 54 = 27 + BH^2$$

$$\hat{C} = 30^\circ \quad \tan B = \frac{AH}{BH} = \frac{3\sqrt{3}}{3\sqrt{3}} = 1 \Rightarrow \hat{B} = 45^\circ \quad \checkmark \quad BH = 3\sqrt{3}$$

$$\sin 30^\circ = \frac{AB}{AC} \Rightarrow \frac{1}{2} = \frac{0.5\sqrt{3}}{AC} \Rightarrow AC = 1.0\sqrt{3}$$

$$\cos 30^\circ = \frac{BC}{AC} \Rightarrow \frac{\sqrt{3}}{2} = \frac{1.0\sqrt{3}}{AC} \Rightarrow BC = 1.0$$

$$AC = 1.0$$

$$\sin 30^\circ = \frac{1}{2} \quad \sin a = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3} \quad \checkmark$$

$$\sin 60^\circ = \frac{\sqrt{3}}{2} \quad BC = \sqrt{12} = 2\sqrt{3} \quad (2\sqrt{3})^2 + 1^2 = \sqrt{13}$$

$$\frac{AB}{\sin C} = \frac{AC}{\sin B} = \frac{BC}{\sin A}$$

$$\frac{AB}{AC} = \frac{\sqrt{5} + \sqrt{3}}{2} = \frac{\sqrt{5} + \sqrt{3}}{2} \quad \checkmark$$

$$\frac{AB}{AC} = \frac{\sin C}{\sin B} = \frac{\sin 100^\circ}{\sin 30^\circ}$$

$$\sin 30^\circ = \frac{1}{2} \quad \sin 100^\circ = \sin(90^\circ + 10^\circ) = \sin 90^\circ \cos 10^\circ + \cos 90^\circ \sin 10^\circ$$

$$\frac{CB}{BA} = 100$$

$$\frac{DB}{BE} = 100$$

$$\frac{1}{9} = \frac{4}{9} \quad \checkmark$$

$$S = a \times b \times \sin \theta = r \times r \times \frac{\sqrt{3}}{r} = \boxed{r\sqrt{3}} \checkmark$$

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$$\sin(\pi - \phi) = \sin \pi \cdot \sin \phi = \frac{\sqrt{3}}{r} \quad a = r \quad b = r$$

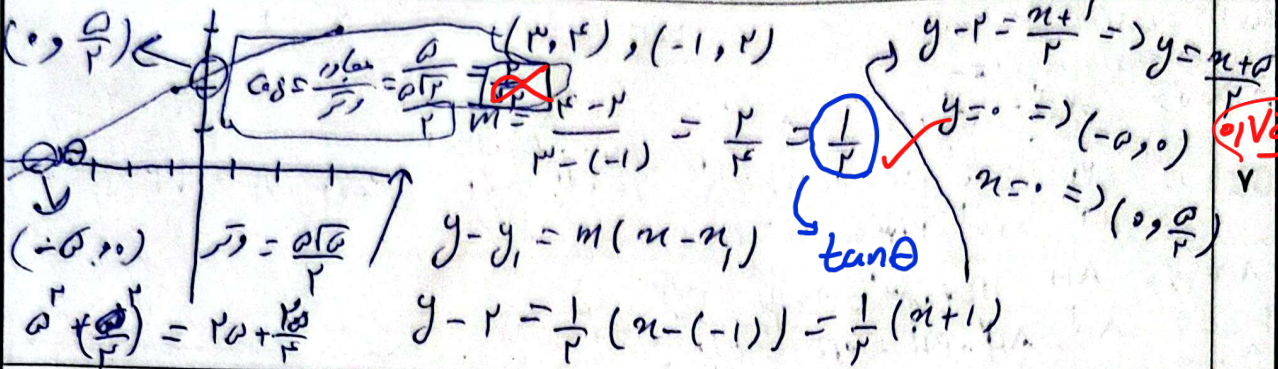
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$$P = r \quad S = \frac{1}{2} \times P \times q \times \sin \theta$$

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$$q = r$$

$$\delta = \frac{1}{2} \times r \times r \times \frac{\sqrt{3}}{r} = \boxed{r\sqrt{3}} \checkmark$$



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$$y = x + \frac{5}{4}$$

$$r y = r x + 5$$

$$\tan \theta = \left| \frac{m_2 - m_1}{1 + m_1 m_2} \right|$$

$$m_1 = 1$$

$$\tan \theta = \left| \frac{m - 1}{1 + m} \right| = \left| \frac{m - 1}{1 + m} \right|$$

$$\tan \theta = -\tan \phi \Rightarrow \frac{\sqrt{3} + 1}{\sqrt{3} - 1} = -\frac{m - 1}{1 + m}$$

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$$\cos(\pi + \alpha) = -\cos \alpha$$

$$\cos(\pi + \frac{\pi}{6}) = -\cos \frac{\pi}{6} = -\left(-\frac{\sqrt{3}}{2}\right) = \frac{\sqrt{3}}{2}$$

$$\sin(\frac{\pi}{2} - \alpha) = \cos \alpha$$

$$\sin(\frac{\pi}{2} - \frac{\pi}{6}) = \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$$

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$$\tan(\frac{\pi}{2} + \alpha) = -\cot \alpha$$

$$\tan(\frac{\pi}{2} + \frac{\pi}{6}) = -\cot(\frac{\pi}{6}) = -(\sqrt{3}) = -\sqrt{3}$$

$$f(\frac{\pi}{6}) = \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - \sqrt{3} = 0 - \sqrt{3} = -\sqrt{3}$$

$$\sin(\frac{11\pi}{6} + \alpha) = \sin(\frac{\pi}{6} + \alpha) = \cos \alpha$$

$$2\pi = 360^\circ$$

$$\cos(\frac{10\pi}{6} - \alpha) = \cos(\frac{\pi}{6} - \alpha) = \sin \alpha$$

$$\cos(2\pi + \alpha) = \cos(\pi + \alpha) = -\cos \alpha$$

$$\sin(9\pi - \alpha) = \sin(-\alpha) = -\sin \alpha$$

$$\frac{\cos \alpha + \sin \alpha}{\sin \alpha - \cos \alpha}$$

$$= \frac{-\sin \alpha + \cos \alpha}{\sin \alpha - \cos \alpha} = \boxed{-1}$$

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$$1 + \cancel{\tan^r \theta} = \frac{1}{\cos^r \theta} \rightarrow \cos^r \theta = \frac{r}{\omega} \xrightarrow{\text{cube } \theta} \boxed{\cos \theta = \frac{r}{\sqrt{\omega}}}$$

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