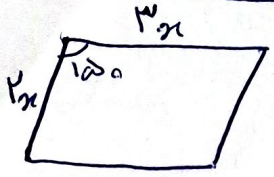
۱۹,۵



(۲)

$$S = 3x \times 2x \times \sin 150 = 3x^2 = 24$$

$$x^2 = 18$$

$$x = \sqrt{18}$$

$$10x = 10\sqrt{18}$$ ✓

۱

(۲)

$$\frac{1}{2} \times 4 \times 7 \times \sin A = 14 \sin A$$

$$7 \times \frac{5}{2} \times \frac{1}{2} \times \sin A = \frac{35}{4} \sin A$$

$$\frac{35}{4} \sin A - 14 \sin A = \frac{7}{4} \sin A$$

$$\frac{7}{2} \sin A = \frac{7}{4} \qquad \sin A = \frac{1}{2}$$

$$A = 30^\circ \qquad \tan A = \frac{\sqrt{3}}{3}$$ ✓

۲

(۲)

$$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha}$$

X	X
✓	✓

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

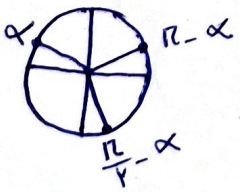
$\cos\alpha -$ ⟶ $\frac{-1-\sin\alpha}{\cos\alpha} = \frac{-1-\sin\alpha}{\cos\alpha}$ ✓

X	X
✓	X

ناحیه سوم ✓

۳

(۲)



$$\tan\left(\frac{\pi}{2} - \alpha\right) = +\cot\alpha = \frac{-4}{3}$$ ✓

$$\tan\alpha = \frac{-3}{4}$$

۴

(۲)

$$\frac{3\cos\left(\frac{3\pi}{2} - \alpha\right) - 2\sin(\pi - \alpha)}{\sin(\pi + \alpha) - \cos\left(\frac{3\pi}{2} + \alpha\right)} = \frac{-3\sin\alpha - 2\sin\alpha}{-\sin\alpha - \sin\alpha} = \frac{-5\sin\alpha}{-2\sin\alpha}$$

$$= \frac{5}{2}$$ ✓

۵

(۲)

$$\frac{\cos\alpha + \sin\alpha}{|\tan^2\alpha - 1|} \qquad \frac{\frac{2}{3} + \frac{-\sqrt{5}}{3}}{|\frac{5}{4} - 1|} = \frac{\frac{2-\sqrt{5}}{3}}{\frac{1}{4}} = \frac{8-4\sqrt{5}}{3}$$ ✓

۹

$$\frac{4}{9} + \sin^2\alpha = 1$$

$$\frac{5}{9} = \sin^2\alpha \qquad \sin\alpha = \frac{-\sqrt{5}}{3} \qquad \tan\alpha = \frac{\frac{-\sqrt{5}}{3}}{\frac{2}{3}} = \frac{-\sqrt{5}}{2}$$

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(۲)

$$4\cos^2\alpha + \cos^2\alpha = 1$$

$$5\cos^2\alpha = 1$$

$$\cos^2\alpha = \frac{1}{5}$$

$$\cos\alpha = \frac{1}{-\sqrt{5}}$$ ✓

۷

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(۲)

$$\frac{-2m}{m^2-1} = \sqrt{3} \qquad -2m = \sqrt{3}m^2 - \sqrt{3}$$

$$\sqrt{3}m^2 + 2m - \sqrt{3} = 0$$

$$m^2 + 2m - 3 = 0$$

$$m = \frac{-3}{\sqrt{3}} \qquad m = \frac{1}{\sqrt{3}}$$

اختلاف $\frac{1}{\sqrt{3}} - \frac{-3}{\sqrt{3}} = \frac{4}{\sqrt{3}}$ ✓

۸

(۱,۵)

$$0 < \frac{1-m}{2+m} < 1$$ ✓

$$\frac{-2m-1}{2+m} < 0$$

	-2		1	
	−	+	+	−

	-2		$-\frac{1}{2}$	
	−	+	+	−

✓

$$m = \left(-\frac{1}{2}, 1\right)$$

۹

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(۲)

$$-\sqrt{2} \times \frac{-\sqrt{3}}{2} + -\sqrt{3} \times \frac{\sqrt{3}}{2} = \frac{3}{2} - \frac{3}{2} = 0$$ ✓

۱۰

۹- ربع اول

$$-\frac{\pi}{4} < -x < \frac{\pi}{4} \xrightarrow{+\frac{\pi}{4}} 0 < \frac{\pi}{4} - x < \frac{\pi}{2}$$

$$\frac{1-m}{2+m} > 0 \rightarrow$$

	-2		1	
$1-m$	$+$	$+$	0	$-$
$2+m$	$-$	0	$+$	$+$
	$-$	$+$	0	$-$

$(-2, 1)$