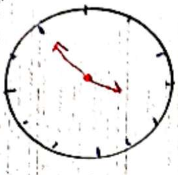
نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ۱۰... کلاس ...[illegible] B...

۱

الف) ۳:۴۵

$4 \times 30 = 120$ $\quad 12 \div 2 = 6$ $\quad 120 + 27 + 6 = 153^\circ$



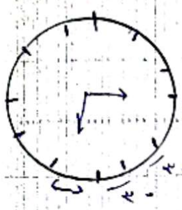
$\frac{54}{2} = 27$

ب) $\alpha = |5.5m - 30h| = |(5.5 \times 54) - (30 \times 3)| = 207 \Rightarrow 360 - 207 = 153^\circ$

۲

الف) ۶:۱۸'

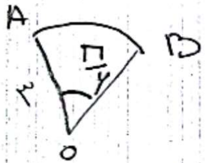
$12 + 30 + 30 + 9 = 81$



$2 \times 6 = 12$ $\quad \frac{18}{2} = 9$

ب) $\alpha = |5.5m - 30h| = |(5.5 \times 18) - (30 \times 6)| = 81^\circ$ $\quad (99 \quad 180)$

۳

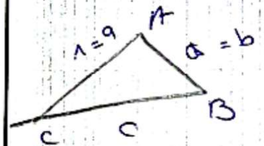


$S = \frac{1}{2} \alpha \times R^2 \rightarrow \frac{\frac{\pi}{6}}{2} \times 9 = \frac{\pi}{12} \times 9 = \frac{9\pi}{12} = \frac{3\pi}{4}$ S قطاع

$L = R\alpha \rightarrow 3 \times \frac{\pi}{6} = \frac{3\pi}{6} = \frac{\pi}{2}$

$P = 3 + 3 + \frac{\pi}{2} = 6 + \frac{\pi}{2}$ محیط قطاع

۴



$S = \frac{1}{2} ab \sin\alpha = \frac{1}{2} \times 5 \times 8 \times \sin 60^\circ = \frac{1}{2} \times 5 \times 8 \times \frac{\sqrt{3}}{2}$

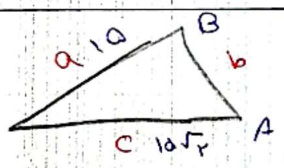
$= \frac{20\sqrt{3}}{2} = 10\sqrt{3}$ مساحت مثلث

$c^2 = a^2 + b^2 - 2ab\cos\alpha \Rightarrow c^2 = 5^2 + 8^2 - 2 \times 5 \times 8 \times \cos 60^\circ =$

$25 + 64 = 89 \quad - 2 \times 5 \times 8 \times \frac{1}{2} = 89 - 40 = 49$ $\quad c = \sqrt{49} = 7$

$\rightarrow P = 5 + 8 + 7 = 20 \rightarrow$ محیط

۵



$\hat{B} + \hat{C} = 150$

$AC = 15\sqrt{2}$

$BC = 15$

$\hat{A} = 180 - 150 = 30^\circ$

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

$\frac{15}{\sin 30} = \frac{15\sqrt{2}}{\sin B} = \frac{15}{\frac{1}{2}} = \frac{15\sqrt{2}}{\sin B}$

$\sin B = \frac{15\sqrt{2}}{30} = \frac{\sqrt{2}}{2}$

$B = 45^\circ$

$C = 105^\circ$

$\frac{Rad}{\pi} = \frac{D}{180} \rightarrow B: \frac{Rad}{\pi} = \frac{45}{180}$

$\rightarrow Rad = \frac{\pi}{4} = \hat{B}$ $\quad C: \frac{Rad}{\pi} = \frac{105}{180} = \frac{7\pi}{12} = \hat{C}$

$\frac{\tan(\pi-\alpha)+۲\tan(\alpha+\pi)}{\tan(۲\pi-\alpha)-\tan(۳\pi+\alpha)} = \frac{-\tan\alpha-۲\tan\alpha}{-\tan\alpha-\tan\alpha} = \frac{۲\tan\alpha}{-۲\tan\alpha} = -۱$	۶
$\tan\frac{\pi}{۲}=\alpha$, $\tan۱۵^\circ=\alpha$ $A=\frac{۲\tan۷۵^\circ+\tan۱۰۵^\circ}{۳\tan۱۶۵^\circ-\tan۲۵۵^\circ} = \frac{۲\tan(\frac{\pi}{۲}-۱۵^\circ)+\tan(\frac{\pi}{۲}+۱۵^\circ)}{۳\tan(\pi-۱۵^\circ)-\tan(۳\frac{\pi}{۲}-۱۵^\circ)}$ $\frac{۲\cot۱۵^\circ-\cot۱۵^\circ}{-۳\tan۱۵^\circ-\cot۱۵^\circ} = \frac{\frac{۱}{\alpha}}{-۳\alpha-\frac{۱}{\alpha}} = \frac{-۱}{۳\alpha^۲+۱}$	۷
$\frac{\sin x+\cos x}{\sin x-\cos x}+\frac{\sin x-\cos x}{\sin x+\cos x}=۳$ $\tan^۲x=?$ $\frac{(\sin+\cos x)^۲+(\sin x-\cos x)^۲}{\sin^۲x-\cos^۲x} = \frac{\sin^۲+\cos^۲+۲\sin\cos+\sin^۲+\cos^۲-۲\sin\cos}{\sin^۲-\cos^۲}$ $\frac{۲(\sin^۲+\cos^۲)}{\sin^۲-\cos^۲} = \frac{۲}{\sin^۲-\cos^۲} = ۳ \longrightarrow ۲=۳(۱-\cos^۲)-۳\cos^۲ = -۶\cos^۲=-۱$ $\cos^۲=\frac{۱}{۶}\rightarrow$ $۱+\tan^۲=\frac{۱}{\cos^۲}$ ۶ $\tan^۲=۵$	۸
$\frac{\sin^۲x-۲\cos^۲x+۱}{\sin^۲x+۲\cos^۲x-۱}=۴$ $\sin^۲=۱-\cos^۲ \longrightarrow \sin^۲x-۲\cos^۲x+۱=(۱-\cos^۲x)-۲\cos^۲x+۱$ صورت $۲-۳\cos^۲x$ $\longrightarrow \sin^۲x+۲\cos^۲x-۱=(۱-\cos^۲x)+۲\cos^۲x-۱=\cos^۲x$ مخرج $\frac{۲-۳\cos^۲x}{\cos^۲x}=۴ \longrightarrow ۲-۳\cos^۲x=۴\cos^۲x \longrightarrow ۷\cos^۲x=۲ \longrightarrow \cos^۲x=\frac{۲}{۷}$ $۱+\tan^۲=\frac{۱}{\cos^۲}=\frac{۷}{۲} \longrightarrow \tan^۲=\frac{۵}{۲}$	۹
الف) $\cos(۲۲/۵^\circ) \longrightarrow \cos^۲\alpha=\frac{۱+\cos۲\alpha}{۲} \longrightarrow \cos^۲۲۲/۵=\frac{۱+\cos۴۵^\circ}{۲}$ $\cos^۲۲۲/۵^\circ=\frac{۱+\frac{\sqrt{۲}}{۲}}{۲} \longrightarrow \cos۲۲/۵=\pm\sqrt{\frac{۱+\frac{\sqrt{۲}}{۲}}{۲}}=\sqrt{\frac{۲+\sqrt{۲}}{۴}}=\frac{\sqrt{۲+\sqrt{۲}}}{۲}$ + چون در ناحیه اول است پس مثبت است ب) $\sin(۶۷/۵^\circ)=\cos(۲۲/۵^\circ)=\frac{\sqrt{۲+\sqrt{۲}}}{۲}$	۱۰