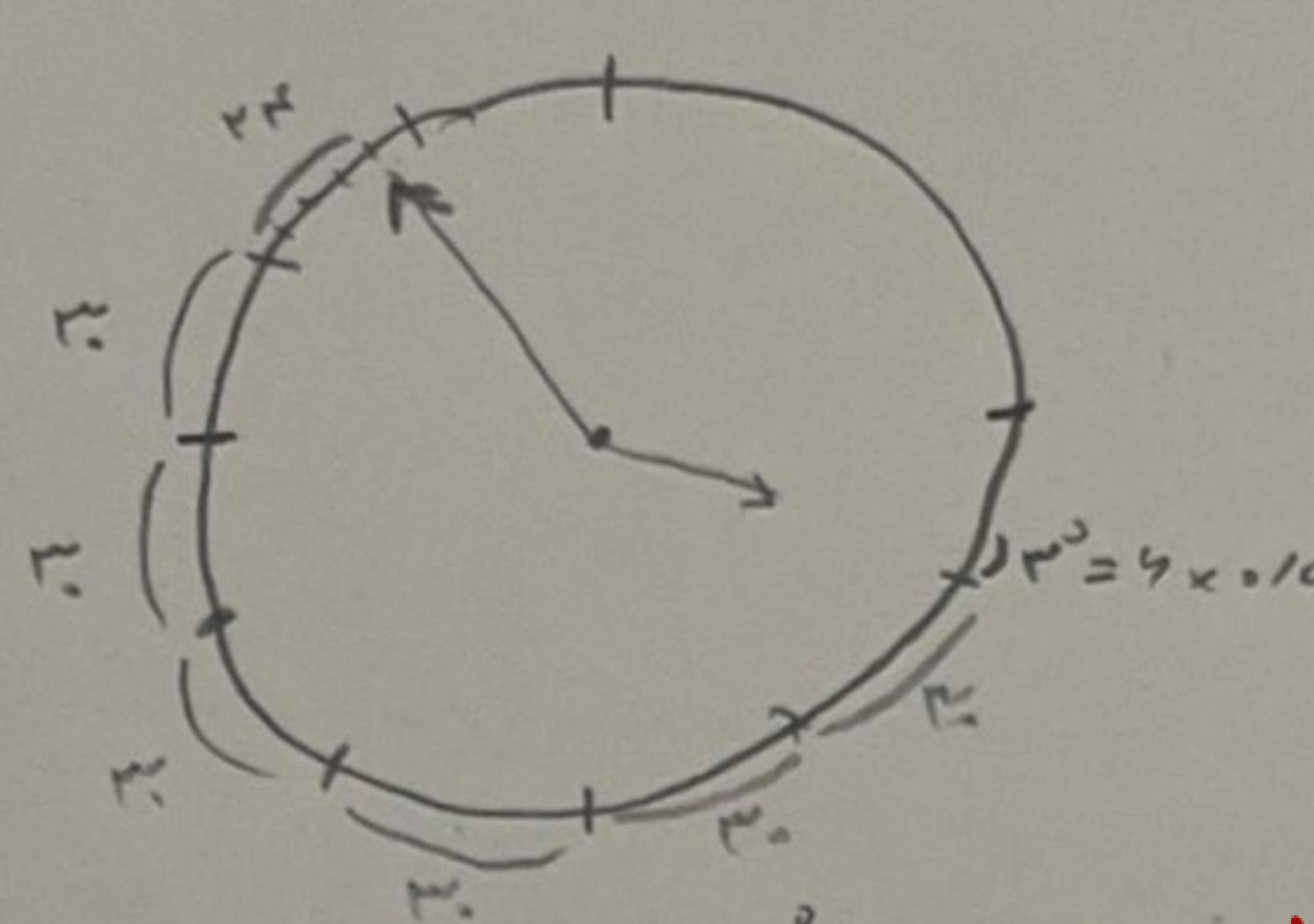
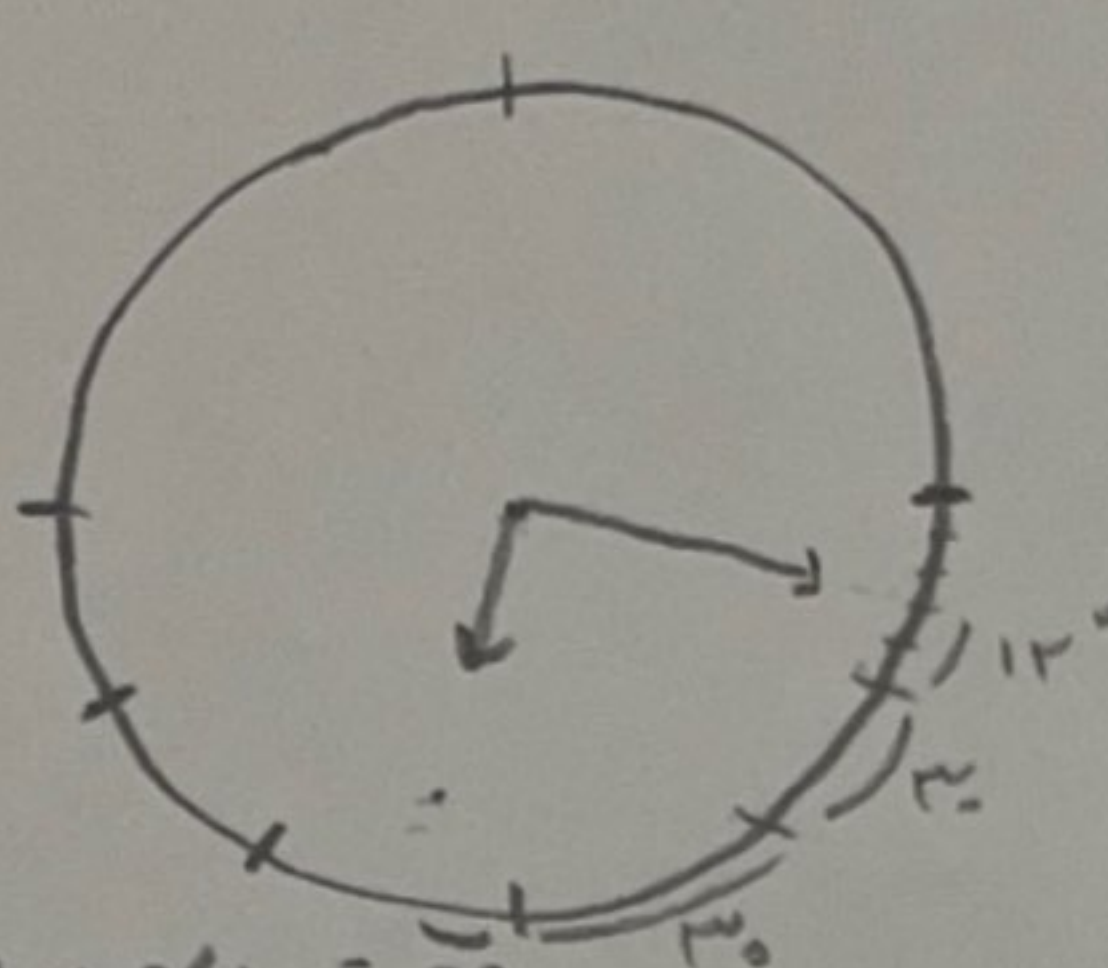


نام و نام خانوادگی آزمون پاسخنامه تشریحی تکلیف شماره ۱۹ ... کلاس ...

(الف)  $30^\circ = 60^\circ / 2$ $4(30) + 2 + 3 = 20.7^\circ$ $340 - 207 = 153$	(ب) $\theta = r_h - d/4m$ $30(3) - 5/4(54) = 90 - 29.7 = 2.7$ $340 - 207 = 153$ 1
(الف)  $18 \times 0.6 = 9$ $9 + 30 + 30 + 12 = 111^\circ$	(ب) $\theta = r_h - d/4m$ $30(4) - 5/4(18) = 120 - 9.9 = 11^\circ$ 2
(الف) $\frac{1}{r} \times \frac{\pi}{2} \times (r)^2 = \frac{3\pi}{4}$	(ب) $AB = \pi r \rightarrow \frac{\pi}{2} \times r = \frac{\pi}{2}$ $r(2) + \frac{\pi}{r} = 6 + \frac{\pi}{r}$ 3
(الف) $S = \frac{1}{2} \times d \times r \times \sin \theta = 10\sqrt{3}$	(ب) $BC^2 = d^2 + r^2 - 2(d)(r)\cos \theta$ $BC^2 = 2d + r^2 - 10 \times \frac{1}{2}$ $BC^2 = 49 \rightarrow BE = 7$ $P = 7 + d + 1 = 20$ 4
$\hat{B} + \hat{C} = 150^\circ \rightarrow 180 - 150 = 30^\circ = \hat{A} = \frac{\pi}{6}$ $AC = 10\sqrt{2}$ $BC = 10$ $\frac{BC}{\sin A} = \frac{10}{\sin \frac{\pi}{6}} = \frac{10}{\frac{1}{2}} = 20$ $\frac{AC}{\sin B} = 20 \rightarrow \frac{10\sqrt{2}}{\sin B} = 20 \rightarrow \sin B = \frac{10\sqrt{2}}{20} = \frac{\sqrt{2}}{2}$ $B = 45^\circ$ $\hat{C} = (\hat{B} + \hat{C}) - \hat{B} = \frac{5\pi}{6} - \frac{\pi}{4} = \frac{7\pi}{12}$ 5	5

$$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(r\pi - \alpha) - \tan(r\pi + \alpha)} = \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = -1$$

3

6

$$\frac{r \tan 150^\circ + \tan 10^\circ}{r \tan 170^\circ - \tan 10^\circ} = \frac{r \tan(\frac{\pi}{2} - 10^\circ) + \tan(\frac{\pi}{2} + 10^\circ)}{r \tan(\pi - 10^\circ) - \tan(\frac{\pi}{2} - 10^\circ)} = \frac{r \cot 10^\circ - \cot 10^\circ}{-\tan 10^\circ - \cot 10^\circ}$$

$$\frac{r \cot 10^\circ}{-\tan 10^\circ - \cot 10^\circ} = \frac{\frac{1}{a}}{-a - \frac{1}{a}} = \frac{\frac{1}{a}}{-\frac{a^2 + 1}{a}} = -\frac{1}{a^2 + 1}$$

5

7

$$\frac{(\sin x + \cos x)^r + (\sin x - \cos x)^r}{(\sin x + \cos x)(\sin x - \cos x)} = r \rightarrow \frac{(\sin^r x + r \sin^{r-1} x \cos x + \cos^r x) + (\sin^r x - r \sin^{r-1} x \cos x + \cos^r x)}{\sin^2 x - \cos^2 x} = r$$

$$\frac{r}{\sin^r x - \cos^r x} = r \rightarrow \frac{\sin^r x - \cos^r x}{\cos^r x} = \frac{r}{\cos^r x} \rightarrow \sin^r x - \cos^r x = \frac{r}{\cos^r x} \rightarrow 1 - \cos^r x - \cos^r x = \frac{r}{\cos^r x} \rightarrow 1 - 2\cos^r x = \frac{r}{\cos^r x} \rightarrow \cos^r x = \frac{1}{2} \rightarrow \cos x = \frac{1}{\sqrt{2}} \rightarrow x = \frac{\pi}{4}$$

4

8

$$\frac{\sin^r x - r \cos^r x + 1}{\sin^r x + r \cos^r x - 1} = r \rightarrow \frac{1 - \cos^r x - r \cos^r x + 1}{1 - \cos^r x + r \cos^r x - 1} = \frac{-r \cos^r x + r}{r \cos^r x} = r$$

$$r \cos^r x = -r \cos^r x + r \rightarrow 2r \cos^r x = r \rightarrow \cos^r x = \frac{1}{2} \rightarrow \cos x = \frac{1}{\sqrt{2}}$$

$$\tan^r x = \frac{\sin^r x}{\cos^r x} = \frac{1 - \cos^r x}{\cos^r x} = \frac{1 - \frac{1}{2}}{\frac{1}{2}} = \frac{\frac{1}{2}}{\frac{1}{2}} = 1$$

2

9

$$\cos \frac{r\pi}{2} = \sqrt{\frac{1 + \cos \pi}{2}} = \sqrt{\frac{1 + (-1)}{2}} = \sqrt{\frac{0}{2}} = 0$$

$$\sin \frac{r\pi}{2} = \sqrt{\frac{1 - \cos \pi}{2}} = \sqrt{\frac{1 - (-1)}{2}} = \sqrt{\frac{2}{2}} = 1$$

3

10