

کتاب مشق‌های ریاضی کلاس اول

(۱)

$$\left(\frac{\sqrt{2}}{2} + \frac{-\sqrt{2}}{2} \right) \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \right) = \left(\frac{\sqrt{2} - \sqrt{2}}{2} \right) \left(\frac{\sqrt{2} + \sqrt{2}}{2} \right) = \frac{-1}{4}$$

$$\Rightarrow \frac{1 + \frac{1}{2}}{2 + \frac{1}{2}} = \frac{2}{4} = \frac{1}{2}$$

(۲) الف

$$BH, AH, 2BH, BH, \sqrt{2}, AH$$

$$\sqrt{2} + \sqrt{2} + HC, 12, HC, 9, HC, 3$$

(ب)

$$\cot 30^\circ, \sqrt{3}$$

$$\Rightarrow AH, \frac{9}{\sqrt{3}}, AH, \frac{9\sqrt{3}}{3}, 3\sqrt{3} \Rightarrow BH, 3\sqrt{3}, B, 60^\circ$$

$$\tan 45^\circ, \sqrt{2} \Rightarrow BD, 50, A, 45^\circ, A, 45^\circ$$

(۳) الف

$$\frac{50\sqrt{2}}{\sqrt{2}} = 50, AD, 100 \Rightarrow \triangle ADC$$

$$\Rightarrow PC, 2, AD = 100$$

$$50\sqrt{2} \times 1 = 50\sqrt{2}$$

$$AC, 2 \times 2 = 4, BC, 2\sqrt{2}$$

(ب)

$$\frac{1}{\sin 45^\circ} \Rightarrow DC, 1 + 1 = 2, \text{ then } \frac{1}{\sqrt{2}}$$

1A
B 5 M 0

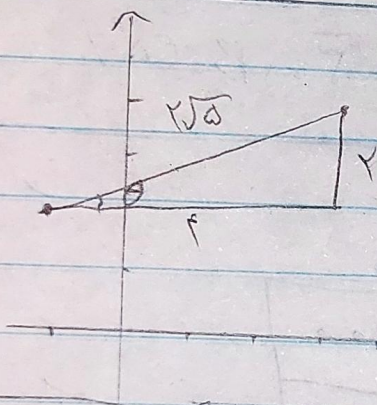
$$\sin(108^\circ) = \sin(90^\circ + 18^\circ) = \sin 90^\circ \cos 18^\circ + \sin 18^\circ \cos 90^\circ = \frac{\sqrt{5}}{5} \times \frac{1}{2} + \frac{\sqrt{5}}{5} \times \frac{\sqrt{5}}{2} = \frac{\sqrt{5} + \sqrt{5}}{2}$$

$$\hat{B}_1, \hat{B}_2 \quad \frac{EB}{BD} = \frac{AB}{BC} = \frac{r}{r} \quad \left. \vphantom{\frac{EB}{BD} = \frac{AB}{BC} = \frac{r}{r}} \right\} \Rightarrow FAB \sim BCD$$

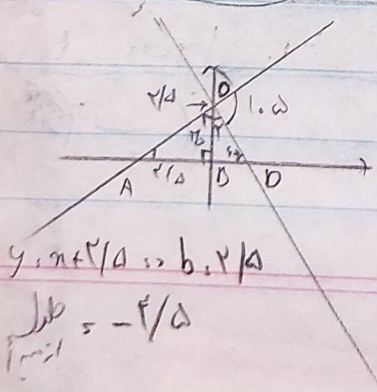
$$\Rightarrow \frac{SE_{AB}}{S_{BCD}} \left(\frac{r}{r} \right) = \frac{r}{9}$$

~~$\frac{1}{x^2} \times x^{\frac{2}{4}} \times \frac{16}{4} \times 9\sqrt{x}$~~

~~1 2 3 4 5 6 7 8 9 10~~



$$\cos \theta = \frac{r}{\sqrt{a^2 + b^2}} = \frac{r}{\sqrt{a^2}} = \frac{r}{a} \quad (\checkmark)$$



AB, Y/W

OB SY/2

$$AB + OB + AO + AO = \sqrt{10} + \sqrt{\frac{10}{2}} + \frac{1}{\sqrt{2}} + \frac{\sqrt{2}}{2}$$

$$= \hat{O}_1 + 5\sqrt{2} + \hat{A} \Rightarrow \hat{O}_1 = |A_0 - \text{loc} - \text{fd}| = 10, \text{ so } OB = \sqrt{10} OD$$

$$s, \sqrt{a}, \frac{\sqrt{a}}{2}, \frac{\sqrt{a}}{4}, \frac{\sqrt{a}}{8}, \frac{\sqrt{a}}{16}, \frac{\sqrt{a}}{32}, \frac{\sqrt{a}}{64}, \frac{\sqrt{a}}{128}, \frac{\sqrt{a}}{256}, \frac{\sqrt{a}}{512}, \frac{\sqrt{a}}{1024}, \frac{\sqrt{a}}{2048}, \frac{\sqrt{a}}{4096}, \frac{\sqrt{a}}{8192}, \frac{\sqrt{a}}{16384}, \frac{\sqrt{a}}{32768}, \frac{\sqrt{a}}{65536}, \frac{\sqrt{a}}{131072}, \frac{\sqrt{a}}{262144}, \frac{\sqrt{a}}{524288}, \frac{\sqrt{a}}{1048576}, \frac{\sqrt{a}}{2097152}, \frac{\sqrt{a}}{4194304}, \frac{\sqrt{a}}{8388608}, \frac{\sqrt{a}}{16777216}, \frac{\sqrt{a}}{33554432}, \frac{\sqrt{a}}{67108864}, \frac{\sqrt{a}}{134217728}, \frac{\sqrt{a}}{268435456}, \frac{\sqrt{a}}{536870912}, \frac{\sqrt{a}}{1073741824}, \frac{\sqrt{a}}{2147483648}, \frac{\sqrt{a}}{4294967296}, \frac{\sqrt{a}}{8589934592}, \frac{\sqrt{a}}{17179869184}, \frac{\sqrt{a}}{34359738368}, \frac{\sqrt{a}}{68719476736}, \frac{\sqrt{a}}{137438953472}, \frac{\sqrt{a}}{274877906944}, \frac{\sqrt{a}}{549755813888}, \frac{\sqrt{a}}{1099511627776}, \frac{\sqrt{a}}{2199023255552}, \frac{\sqrt{a}}{4398046511104}, \frac{\sqrt{a}}{8796093022208}, \frac{\sqrt{a}}{17592186044416}, \frac{\sqrt{a}}{35184372088832}, \frac{\sqrt{a}}{70368744177664}, \frac{\sqrt{a}}{140737488355328}, \frac{\sqrt{a}}{281474976710656}, \frac{\sqrt{a}}{562949953421312}, \frac{\sqrt{a}}{1125899906842624}, \frac{\sqrt{a}}{2251799813685248}, \frac{\sqrt{a}}{4503599627370496}, \frac{\sqrt{a}}{9007199254740992}, \frac{\sqrt{a}}{18014398509481984}, \frac{\sqrt{a}}{36028797018963968}, \frac{\sqrt{a}}{72057594037927936}, \frac{\sqrt{a}}{144115188075855872}, \frac{\sqrt{a}}{288230376151711744}, \frac{\sqrt{a}}{576460752303423488}, \frac{\sqrt{a}}{1152921504606846976}, \frac{\sqrt{a}}{2305843009213693952}, \frac{\sqrt{a}}{4611686018427387904}, \frac{\sqrt{a}}{9223372036854775808}, \frac{\sqrt{a}}{18446744073709551616}, \frac{\sqrt{a}}{36893488147419103232}, \frac{\sqrt{a}}{73786976294838206464}, 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\frac{\sqrt{a}}{1298074214633706907132624082305024}, \frac{\sqrt{a}}{2596148429267413814265248164610048}, \frac{\sqrt{a}}{5192296858534827628530496329220096}, \frac{\sqrt{a}}{10384593717069655257060992658440192}, \frac{\sqrt{a}}{20769187434139310514121985316880384}, \frac{\sqrt{a}}{41538374868278621028243970633760768}, \frac{\sqrt{a}}{83076749736557242056487941267521536}, \frac{\sqrt{a}}{166153499473114484112975882535043072}, \frac{\sqrt{a}}{332306998946228968225951765070086144}, \frac{\sqrt{a}}{664613997892457936451903530140172288}, \frac{\sqrt{a}}{1329227995784915872903807060280344576}, \frac{\sqrt{a}}{2658455991569831745807614120560689152}, \frac{\sqrt{a}}{5316911983139663491615228241121378304}, \frac{\sqrt{a}}{10633823966279326983230456482242756608}, \frac{\sqrt{a}}{21267647932558653966460912964485513216}, \frac{\sqrt{a}}{42535295865117307932921825928971026432}, \frac{\sqrt{a}}{85070591730234615865843651857942052864}, \frac{\sqrt{a}}{170141183460469231731687303715884105728}, 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$$\therefore BD = \frac{\sqrt{5}}{9} \times \frac{\sqrt{5}}{4} m + \frac{1}{2} \text{ so } \frac{\sqrt{5}}{4} m + \frac{1}{2}$$

$$= \frac{-1}{d\sqrt{u}} \left[m_s - \frac{w}{\sqrt{u}} \sqrt{u} \right]$$

$$\begin{aligned}
 & \frac{\cos(\frac{\pi}{4} + n) + \sin(\frac{\pi}{4} - n) - \tan(\frac{\pi}{4} + n)}{\sin 135^\circ} = \frac{\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}}{\frac{1}{\sqrt{2}}} = -\sqrt{2} \quad (9) \\
 & = (-\cos n) + (\cos n) - (-\cot n) \cdot \cot n \cdot \cot(\frac{5\pi}{4}) = -\sqrt{2}
 \end{aligned}$$

$$\frac{\sin(\frac{\pi}{4} + n) + \cos(\frac{\pi}{4} - n)}{\cos(\pi + n) - \sin(-n)} \cdot \frac{(+\cos n) + (-\sin n)}{(-\cos n) - (-\sin n)} \quad (10)$$

$$\frac{\cos n - \sin n}{-\cos n - (-\sin n)}$$

$$= \frac{\cos n - \sin n}{-\cos n + \sin n} = -1$$