

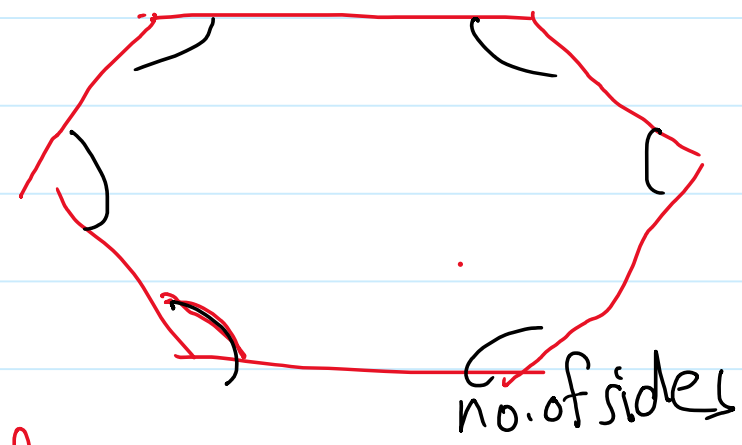
resultant of coplaner forces meeting at point_4

Thursday, October 9, 2025 8:37 AM

2) A B C D H E is a regular hexagon. Forces of magnitudes 2, $4\sqrt{3}$, 8, $2\sqrt{3}$ and 4 kg.wt act at point A in directions \overrightarrow{AB} , \overrightarrow{AC} , \overrightarrow{AD} , \overrightarrow{AH} , \overrightarrow{AE} respectively. Find the magnitude and the direction of their resultant.

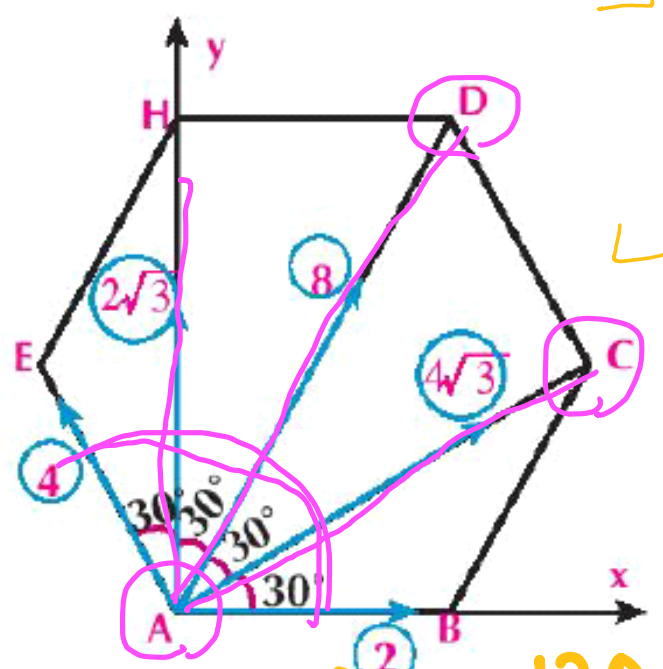
standard

basic



no. of sides

sum angle = $180(n-2)$



$30^\circ = \frac{120}{4}$

one angle = $\frac{180(n-2)}{n} = \frac{180(6-2)}{6} = \boxed{120^\circ}$

$X = 2 \cos 0^\circ + 4\sqrt{3} \cos 30^\circ + 8 \cos 60^\circ + 2\sqrt{3} \cos 90^\circ + 4 \cos 120^\circ$

$X = \boxed{} \vec{i}$

$Y = 2 \sin 0^\circ + 4\sqrt{3} \sin 30^\circ + 8 \sin 60^\circ + 2\sqrt{3} \sin 90^\circ + 4 \sin 120^\circ$

$Y = \boxed{} \vec{j}$

$R = \boxed{} \vec{i} + \boxed{} \vec{j}$

$\tan \theta = \frac{Y}{X}$

$\theta = \checkmark$

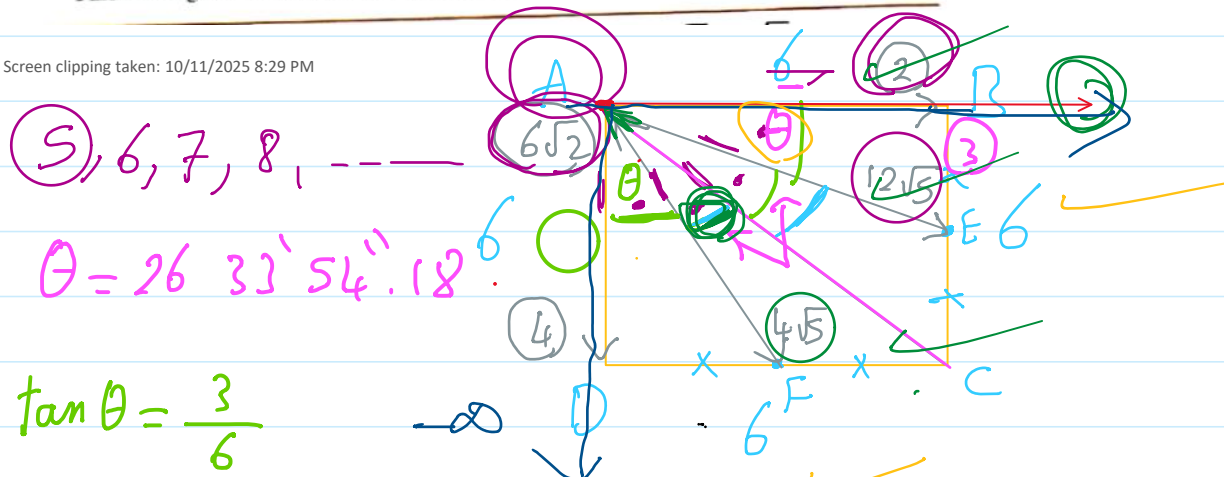
$R = \sqrt{X^2 + Y^2} = \checkmark$

resultant of coplaner forces meeting at point_5

Saturday, October 11, 2025 8:25 PM

21 ABCD is a square of side length 6 cm. The point E is the midpoint of \overline{BC} and F is the midpoint of \overline{DC} , the five forces of magnitudes 2, $12\sqrt{5}$, $6\sqrt{2}$, $4\sqrt{5}$ and 4 kg.wt. act at the point A in the directions of \overline{AB} , \overline{AE} , \overline{CA} , \overline{AF} and \overline{AD} respectively. Find the magnitude and the direction of the resultant of these forces. « 30 kg.wt., $36^\circ 52' 12''$ »

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5, 6, 7, 8, ---

$$\theta = 26^\circ 33' 54.18''$$

$$\tan \theta = \frac{3}{6}$$

$$\theta = \tan^{-1} \frac{3}{6} = 26^\circ 33' 54.18''$$

$$45^\circ - 26^\circ 33' 54.18'' = 18^\circ 26' 5.84''$$

$$X = 2 \cos 0^\circ + 12\sqrt{5} \cos 26^\circ 33' 54.18'' + 6\sqrt{2} \cos 45^\circ + 4\sqrt{5} \cos 63^\circ 26' 5.84'' + 4 \cos 90^\circ$$

$$Y = -2 \sin 0^\circ + 12\sqrt{5} \sin 26^\circ 33' 54.18'' + 6\sqrt{2} \cos 45^\circ - 4\sqrt{5} \cos 63^\circ 26' 5.84'' - 4 \cos 90^\circ$$