Revision 1st Sec.

Final revision

Geometry

If $\overrightarrow{AB} = (2, 6)$, $\overrightarrow{AC} = (-2, 9)$, then $\|\overrightarrow{BC}\| = \ldots\ldots\ldots$

(a) 15 (b) 13 (c) 4 (d) 5

If $3\vec{i} + 4\vec{j} = (k, \theta^{rad})$, $\vec{A} = \left(k, \frac{\pi}{2} + \theta^{rad}\right)$, then $\vec{A} = \ldots\ldots\ldots$

(a) $-4\vec{i} + 3\vec{j}$ (b) $3\vec{i} - 4\vec{j}$ (c) $-3\vec{i} + 4\vec{j}$ (d) $4\vec{i} - 3\vec{j}$

If $\vec{A} = \left(2\sqrt{2}, \frac{\pi}{4}\right)$, $\vec{B} = \left(2\sqrt{2}, \frac{3\pi}{4}\right)$, then $\vec{A} + \vec{B} = \ldots\ldots\ldots$

(a) $\left(4\sqrt{2}, \pi\right)$ (b) $(4, 4)$ (c) $(4, 0)$ (d) $\left(4, \frac{\pi}{2}\right)$

If $\vec{A} = (3, -2)$, $\vec{B} = (-2, 5)$, $\vec{C} = (0, 11)$, then the vector $\vec{C}$ in terms of $\vec{A}$ and $\vec{B}$ is $\ldots\ldots\ldots$

(a) $\vec{C} = 2\vec{A} + 3\vec{B}$ (b) $\vec{C} = 3\vec{A} + 2\vec{B}$

(c) $\vec{C} = 3\vec{A} - 2\vec{B}$ (d) $\vec{C} = 2\vec{A} - 3\vec{B}$

The vector represents a displacement of 40 cm. of a body in direction of eastern south = $\ldots\ldots\ldots$

(a) $20\sqrt{2}\,\vec{i} + 20\sqrt{2}\,\vec{j}$ (b) $-20\sqrt{2}\,\vec{i} + 20\sqrt{2}\,\vec{j}$

(c) $-20\sqrt{2}\,\vec{i} - 20\sqrt{2}\,\vec{j}$ (d) $20\sqrt{2}\,\vec{i} - 20\sqrt{2}\,\vec{j}$

If $\|12\vec{A}\| = 2\|k\vec{A}\|$, then $k = \ldots\ldots\ldots$

(a) 6 (b) ± 6 (c) -6 (d) 24

If $\vec{A} = -10\vec{i} + k\vec{j}$, $\vec{B} = \vec{i} + 3\vec{j}$ and $\vec{A} \perp \vec{B}$, then $k = \ldots\ldots\ldots$

(a) -30 (b) $\frac{10}{3}$ (c) $\frac{3}{10}$ (d) 30

If $\overrightarrow{A} = (k+1, 1)$, $\overrightarrow{B} = (2, k)$, then values of k that make $\overrightarrow{A} // \overrightarrow{B}$ are ....

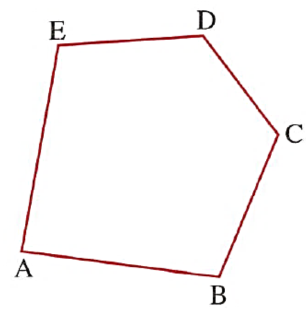
(a) – 2 , zero (b) 1 , 2 (c) – 2 , 1 (d) $-\frac{2}{3}$

If $\overrightarrow{A} = 20\overrightarrow{i} - 15\overrightarrow{j}$, $\overrightarrow{B} = 7\overrightarrow{i} + 24\overrightarrow{j}$ and $\overrightarrow{M} = \overrightarrow{A} + \overrightarrow{B}$, $\overrightarrow{N} = \overrightarrow{A} - \overrightarrow{B}$, then ....

(a) $\overrightarrow{M} // \overrightarrow{N}$ (b) $\overrightarrow{M} \perp \overrightarrow{N}$ (c) $\overrightarrow{M} = \overrightarrow{N}$ (d) $\|\overrightarrow{M}\| = \|\overrightarrow{N}\|$

In the opposite figure :

All the following express $\overrightarrow{AE}$ except ....



(a) $\overrightarrow{AC} + \overrightarrow{CD} + \overrightarrow{DE}$

(b) $\overrightarrow{AB} + \overrightarrow{BD} + \overrightarrow{ED}$

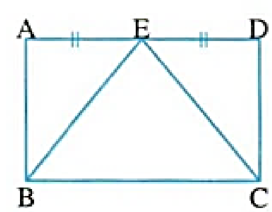
(c) $\overrightarrow{AD} + \overrightarrow{DE}$

(d) $\overrightarrow{AB} + \overrightarrow{BC} + \overrightarrow{CD} + \overrightarrow{DE}$

In the opposite figure :

ABCD is a rectangle , E is the midpoint of $\overline{AD}$

, then $\overrightarrow{EB} + \overrightarrow{BA} - \overrightarrow{DC} =$ ....

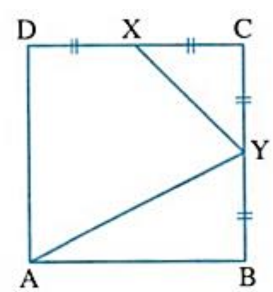


(a) $\overrightarrow{EB}$ (b) $\overrightarrow{BE}$

(c) $\overrightarrow{EC}$ (d) $\overrightarrow{CE}$

In the opposite figure :

ABCD is a square and $\overrightarrow{AY} + \overrightarrow{XY} = k\,\overrightarrow{XC}$, then k = ...



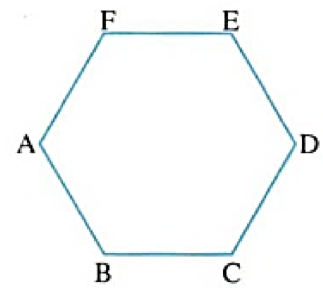
(a) 1 (b) 2

(c) 3 (d) 4

In the opposite figure :

ABCDEF is a regular hexagon

, then $(\overrightarrow{AB} - \overrightarrow{CB}) + \overrightarrow{AF} + \overrightarrow{DE} =$ ....



(a) $\overrightarrow{FE}$ (b) $\overrightarrow{AE}$

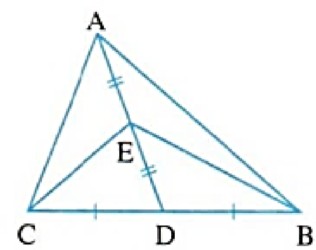
(c) $\overrightarrow{AD}$ (d) $\overrightarrow{AC}$

In the opposite figure :

ABC is a triangle , if D is the midpoint of $\overline{BC}$

, E is the midpoint of $\overline{AD}$, then

$\overrightarrow{AB} + \overrightarrow{AC} =$ .... $\overrightarrow{AE}$



(a) 1 (b) 2 (c) 4 (d) – 4

In the opposite figure :

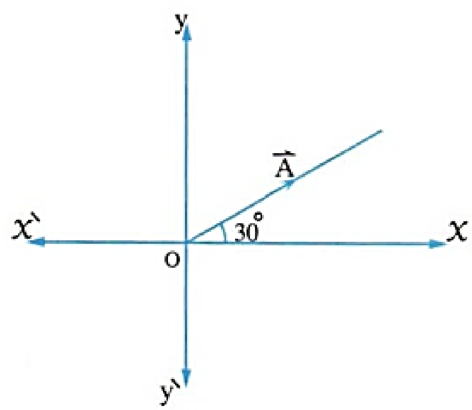
$\| \overrightarrow{A} \| = 4$ length unit , then $\overrightarrow{A} =$ ....

(a) $(2 , 2\sqrt{3})$

(b) $(2\sqrt{3} , 2)$

(c) $(4 , \sqrt{3})$

(d) $(\sqrt{3} , 2)$



All the following are unit vectors except ....

(a) (1 , 0) (b) (0 , – 1) (c) (0.6 , 0.8) (d) (1 , 1)

In Δ ABC , A (3 , 5) , B (7 , 10) , C (2 , 3) , then the coordinates of the point of intersection of its medians is ....

(a) (4 , 6) (b) (6 , 4) (c) (6 , 9) (d) (9 , 6)

If the position vector $\overrightarrow{A} = (\sqrt{3}, 1)$ is rotated around the origin by an angle of measure 45° clockwise , then the polar form of the vector $\overrightarrow{A}$ after rotation is ....

(a) (2 , 30°) (b) (2 , 315°) (c) (2 , 345°) (d) (2 , 15°)

If $\overrightarrow{AB} = (3, 4)$, A (– 2 , 5) , C divides $\overline{AB}$ by the ratio 3 : 2 externally , then C = ...

(a) (7 , 17) (b) (8 , 3) (c) (– 8 , 3) (d) (– 7 , – 17)

If C (4 , 4) divides $\overline{AB}$ internally in the ratio 1 : 2 and A (7 , 8) , then B is ....

(a) (– 2 , – 4) (b) (1 , 2) (c) (– 1 , – 2) (d) (2 , 4)

The ratio of division that the x-axis divides the line segment $\overline{AB}$ where A (2 , 5) , B (7 , – 2) is ....

(a) 5 : 2 internally. (b) 2 : 3 internally.

(c) 3 : 2 externally. (d) 2 : 5 externally.

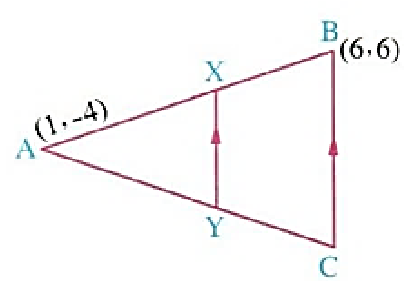
The ratio by which the y-axis divides $\overline{AB}$ where A (2 , 5) , B (6 , 7) equals ....

(a) 1 : 3 externally. (b) 3 : 1 internally.

(c) 1 : 2 externally. (d) 3 : 2 internally.

In the opposite figure :

If $\overline{XY} \parallel \overline{BC}$, $\frac{AY}{AC} = \frac{3}{5}$, then X = ...



(a) (2 , 4) (b) (4 , 2)

(c) (– 2 , 4) (d) (– 4 , 2)

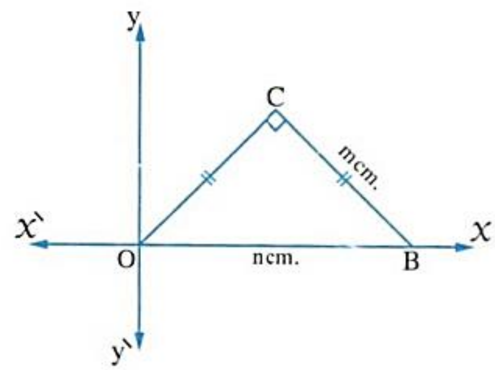
The vector equation of the straight line which passes through the point (– 4 , 3) and its direction vector is (2 , 5) is ....

(a) $\vec{r} = (2, 5) + k(-4, 3)$
(b) $\vec{r} = (-4, 3) + k(2, 5)$
(c) $\vec{r} = (-4, 3) + k(5, 2)$
(d) $\vec{r} = (2, 5) + k(3, -4)$

In the opposite figure :

The equation of the straight line $\overleftrightarrow{OC}$ is ....

(a) $y = \frac{m}{n} x$
(b) $y = x$
(c) $y = \frac{n}{m} x$
(d) $y = mn\, x$



The straight line : $6x - 8y = 48$ makes with the coordinate axes a triangle , its perimeter = ... length unit.

(a) 48
(b) 24
(c) 12
(d) 8

The equation of the straight line which passes through the point (3 , – 2) and is perpendicular to the straight line y = 7 is ....

(a) $x = 3$
(b) $x = 7$
(c) $y = -2$
(d) $y = 7$

The parametric equations of the straight line which makes with the positive direction of the x-axis a positive angle of measure 45° and passes through the point (3 , – 5) are ....

(a) $x = 3 + k, y = -5 + k$
(b) $x = 3 + k, y = 5 + k$
(c) $x = 1 + 3k, y = 1 - 5k$
(d) $x = 1 - 3k, y = 1 + 5k$

If A (1 , – 2) , B (3 , – 1) , then the equation of the straight line which divides $\overline{AB}$ by ratio 3 : 1 internally and perpendicular to $\overline{AB}$ is ....

(a) $4x + 2y = 5$ (b) $4x + 2y = 15$ (c) $8x + 4y = 5$ (d) $8x + 4y = 15$

In the opposite figure :

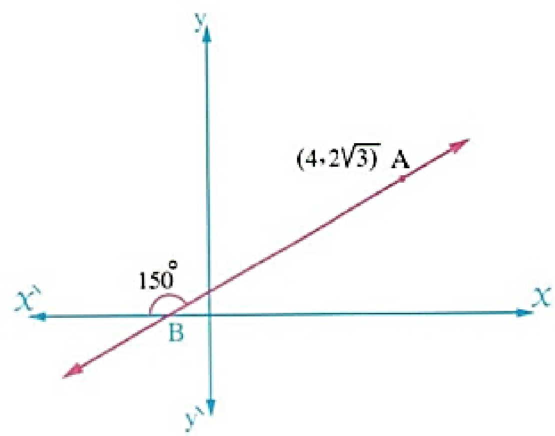
The equation of $\overleftrightarrow{AB}$ is ....

(a) $x - \sqrt{3}\, y - 1 = 0$

(b) $x - \sqrt{3}\, y + 2 = 0$

(c) $\sqrt{3}\, x + y - \sqrt{3} = 0$

(d) $3x - \sqrt{3}\, y - 6 = 0$

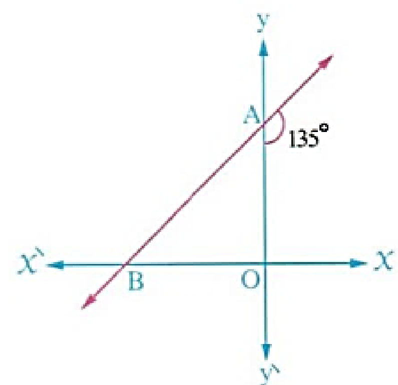


In the opposite figure :

If the length of $\overline{AB} = 2\sqrt{2}$ length units , then the equation of the straight line $\overleftrightarrow{AB}$ is ....

(a) $\frac{x}{2} + \frac{y}{2} = 1$ (b) $\frac{x}{2} - \frac{y}{2} = 1$

(c) $\frac{x}{2} - \frac{y}{2} = -1$ (d) $\frac{x}{2} + \frac{y}{2} = -1$



The measure of the angle between the two straight lines $L_1 : x + 2y + 5 = 0$, $L_2 : \vec{r} = (1 , 4) + k (1 , 2)$ equals ....

(a) zero (b) 45° (c) 90° (d) 135°

The measure of the acute angle between the two straight lines $L_1 : \vec{r} = (2 , 5) + k (-3 , 1)$, $L_2 : 2x = 3 - y$ equals ....

(a) 30° (b) 45° (c) 60° (d) 50°

The set of values of k which makes the measure of the acute angle between the two straight lines $x + k y - 8 = 0$, $2x - y - 5 = 0$ equals $\frac{\pi}{4}$ is ……………

(a) $\{3, -\frac{1}{3}\}$ (b) $\{-3, \frac{1}{3}\}$ (c) $\{3, \frac{1}{3}\}$ (d) $\{3\}$

The length of the perpendicular drawn from the point (– 1 , 4) to the y-axis equals …………… length unit.

(a) 7 (b) – 1 (c) 1 (d) 4

The length of the perpendicular drawn from the point (– 2 , – 4) to the straight line $\vec{r} = (3, 0) + k(6, 8)$ equals …………… length units.

(a) 1.6 (b) 2.6 (c) 0.6 (d) 3.6

The area of the circle with centre (4 , – 1) and touches the straight line $L : \vec{r} = (1, 1) + k(12, 5)$ equals …………… square units.

(a) 8π (b) 9π (c) 6π (d) 3π

The distance between the two straight lines $3x - 4y + 20 = 0$, $3x - 4y + 10 = 0$ equals …………… length unit.

(a) 2 (b) 3 (c) 4 (d) 5

ABC is an equilateral triangle in which A (2 , – 1) and the equation of $\overleftrightarrow{BC}$ is $x + y = 2$, then the length of any side of ΔABC = …………… length unit.

(a) $\frac{\sqrt{2}}{2}$ (b) $\frac{\sqrt{6}}{2}$ (c) $\frac{\sqrt{6}}{3}$ (d) $\sqrt{2}$

The equation of the straight line which passes through the point (3 , 4) and the point of intersection of the two lines $L_1 : 3x + 2y - 7 = 0$, $L_2 : \vec{r} = (-2 , 0) + k (3 , 2)$ is ....

(a) $x - y + 1 = 0$

(b) $x - y + 2 = 0$

(c) $x + y - 1 = 0$

(d) $x + y + 2 = 0$

BEST WISHES

MR. MICHAEL GAMIL