

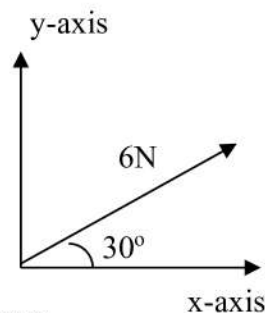
Name:		Roll No.		Subject	Math
Test Type	Only MCQs	Class	12	Date	
Chapter	7 Vectors	Unit	07	Time	

Q. No. 1 Tick the best option

- If $\vec{OP} = x\vec{i} + y\vec{j}$ & $\vec{AB} = 4\vec{i} - 7\vec{j}$ when $\vec{OP} = \vec{AB}$ then y is.
(a) 4 (b) 7 (c) $-7\vec{j}$ (d) -7
- The vectors $\vec{u} = 2\vec{i} + 3\vec{j} + \vec{k}$ and $\vec{w} = -6\vec{i} - 9\vec{j} - 3\vec{k}$ are
(a) Parallel and have same direction (b) Parallel but have opposite direction
(c) Neither parallel nor perpendicular (d) Perpendicular
- If $\vec{v} = \vec{i} - 3\vec{j} + 4\vec{k}$ and $\vec{w} = a\vec{i} + 9\vec{j} - 12\vec{k}$ are parallel then the value of a is.
(a) -3 (b) 3 (c) 1 (d) -1
- The direction cosines of $\vec{v} = 6\vec{i} - 2\vec{j} + \vec{k}$ are
(a) $\left(\frac{6}{\sqrt{41}}, \frac{-2}{\sqrt{41}}, \frac{1}{\sqrt{40}}\right)$ (b) $\left(\frac{6}{\sqrt{41}}, \frac{2}{\sqrt{41}}, \frac{1}{\sqrt{41}}\right)$
(c) $\left(\frac{-6}{\sqrt{41}}, \frac{2}{\sqrt{41}}, \frac{-1}{\sqrt{40}}\right)$ (d) $\left(\frac{6}{\sqrt{41}}, \frac{-2}{\sqrt{41}}, \frac{1}{\sqrt{41}}\right)$
- The angle between the vectors $\vec{u} = 2\vec{i} = \vec{j} + \vec{k}$ and $\vec{v} = -\vec{i} + \vec{j}$ is
(a) $\frac{\pi}{2}$ (b) $\frac{\pi}{3}$ (c) $\frac{3\pi}{2}$ (d) $\frac{5\pi}{6}$
- If the vectors $2\vec{i} + \alpha\vec{j} + 5\vec{k}$ and $3\vec{i} + \vec{j} + \alpha\vec{k}$ are perpendicular then value of α is.
(a) 1 (b) -1 (c) 0 (d) None of these
- If A and B have same direction then $\vec{A} \cdot \vec{B} =$
(a) AB (b) -AB (c) $AB \sin \theta$ (d) $AB \tan \theta$
- The projection of $-2\vec{i} + 3\vec{j} + 7\vec{k}$ on $2\vec{j} + \vec{k}$.
(a) $\frac{13}{5}$ (b) $\frac{13}{4}$ (c) $\frac{13}{\sqrt{5}}$ (d) 13
- If 2 and 2 are x and y-components of a vector then its angle with x-axis.
(a) 30° (b) 45° (c) 60° (d) 90°
- A vector whose magnitude is 2 and is in the direction of $5\vec{i} + 3\vec{j} + 2\vec{k}$ is.
(a) $\frac{10\vec{i}}{\sqrt{38}} + \frac{6\vec{j}}{\sqrt{38}} + \frac{4\vec{k}}{\sqrt{38}}$ (b) $\frac{5}{\sqrt{38}}\vec{i} + \frac{3}{\sqrt{38}}\vec{j} + \frac{2}{\sqrt{38}}\vec{k}$
(c) $10\vec{i} + 6\vec{j} + 4\vec{k}$ (d) $-10\vec{i} - 6\vec{j} - 4\vec{k}$
- $\vec{A} \cdot \vec{B}$ is.
(a) Vector quantity (b) Scalar quantity
(c) Neither vector nor scalar (d) Perpendicular vectors
- If a vector $\vec{A}$ is multiplied by a number n, then the magnitude of resultant vector is.
(a) $n|\vec{A}|$ (b) $|n\vec{A}|$ (c) $|\vec{A}|$ (d) $-n|\vec{A}|$
- The projection of $\vec{B}$ on $\vec{A}$ is
(a) $\frac{\vec{A} \cdot \vec{B}}{|\vec{A}|}$ (b) $\frac{\vec{A} \cdot \vec{B}}{|\vec{B}|}$ (c) $\frac{\vec{A} \cdot \vec{B}}{|\vec{AB}|}$ (d) $\vec{A} \cdot \vec{B}$

Name:		Roll No.		Subject	Math
Test Type	Only MCQs	Class	12	Date	
Chapter	7 Vectors	Unit	07	Time	

14. If the angle between the vectors with magnitudes 12 and 4 is 60° then their dot product is.
(a) 6 (b) 48 (c) 12 (d) 24
15. $(\underline{i} - \underline{j}) \cdot (\underline{j} - \underline{k}) \times (\underline{k} - \underline{j}) =$
(a) 1 (b) 0 (c) $\underline{i} - \underline{k}$ (d) $\underline{j} - \underline{k}$
16. If $\underline{a} = -4\underline{i} + \underline{j} - 2\underline{k}$, $\underline{b} = 2\underline{i} + \underline{j} + \underline{k}$ then $\underline{b} \times \underline{a} =$
(a) $3\underline{i} - 6\underline{k}$ (b) $-3\underline{i} + 6\underline{k}$ (c) $3\underline{i} + 6\underline{k}$ (d) $-3\underline{i} - 6\underline{k}$
17. The area of triangle whose adjacent sides are $3\underline{i} + 4\underline{j}$ and $-5\underline{i} + 7\underline{j}$ is.
(a) 20 (b) $\frac{41}{2}$ (c) 10 (d) 5
18. If α, β, γ are direction angles of a vector $\underline{r}$ then $\cos^2 \alpha + \cos^2 \beta + \cos^2 \gamma =$
(a) 0 (b) 3 (c) 2 (d) 1
19. If θ is angle between two vectors $\underline{u}$ & $\underline{v}$ then $\underline{u} \cdot \underline{v} \geq 0$ only for.
(a) $0 \leq \theta \leq \frac{\pi}{2}$ (b) $0 \leq \theta \leq \pi$ (c) $\frac{\pi}{2} \leq \theta \leq \pi$ (d) $0 < \theta < \frac{\pi}{2}$
20. The direction cosines of x-axis are.
(a) 0,0,1 (b) 0,1,0 (c) 1,0,0 (d) 1,1,1
21. The number of vectors having unit length perpendicular to vectors $\underline{u} = [1 \ 1 \ 0]$ & $\underline{v} = [0, 1, 1]$ is
(a) One (b) Three (c) Two (d) None
22. If $\underline{v} \cdot \underline{a} = 0$, $\underline{v} \cdot \underline{b} = 0$ and $\underline{v} \cdot \underline{c} = 0$ for any non-zero vector $\underline{r}$, then the value of $[\underline{a} \ \underline{b} \ \underline{c}]$ is
(a) $\frac{1}{2}$ (b) 1 (c) 0 (d) -1
23. If $\underline{a} \times \underline{b} = 0$ and $\underline{a} \cdot \underline{b} = 0$, the
(a) $\underline{a}$ and $\underline{b}$ are parallel (b) either $\underline{a} = 0$ or $\underline{b} = 0$
(c) $\underline{a}$ and $\underline{b}$ are perpendicular (d) both $\underline{a}$ & $\underline{b}$ are non-zero
24. $[\underline{u} \ \underline{v} \ \underline{w}]$ represents
(a) area (b) Circumference (c) Volume (d) A vector
25. The area of triangle whose adjacent sides are $3\underline{i} + 4\underline{j}$ and $-5\underline{i} + 7\underline{j}$ is.
(a) 10 (b) 20 (c) $\frac{41}{2}$ (d) 5
26. If $\underline{a}$ and $\underline{b}$ are position vectors of points A and B respectively then the position vector of the point "P" of join of AB internally in ratio $p : q$ is.
(a) $\underline{r} = \frac{p\underline{a} - q\underline{b}}{p - q}$ (b) $\underline{r} = \frac{q\underline{a} + p\underline{b}}{q + p}$ (c) $\frac{p\underline{a} + q\underline{b}}{p + q}$ (d) None
27. In fig, component of force along y-axis is.
(a) 1N (b) 2N (c) 3N (d) $3\sqrt{3}$ N
28. If the cross product of two vectors vanishes, the vectors will be.
(a) Perpendicular (b) Parallel (c) Non-Parallel (d) None
29. If $\vec{A} = a_2 \underline{j} + a_3 \underline{k}$ and $\vec{B} = b_2 \underline{j} + b_3 \underline{k}$ then direction of $\vec{A} \times \vec{B}$ is along.
(a) x - axis (b) y - axis (c) z-axis (d) None



Name:		Roll No.		Subject	Math
Test Type	Only MCQs	Class	12	Date	
Chapter	7 Vectors	Unit	07	Time	

30. If $\hat{n}$ a unit vector perpendicular to plane containing a and b , then $\hat{n} =$
 (a) $\frac{a \times b}{|a \times b|}$ (b) $\frac{a \times b}{ab \sin \theta}$ (c) $ab \sin \theta$ (d) $\frac{a \times b}{ab \cos \theta}$
31. If $\underline{v} = a\underline{i} + b\underline{j} + c\underline{k}$ then the projection of v along $\underline{j} =$
 (a) a (b) c (c) b (d) 0
32. $\underline{i} \times \underline{i} + \underline{k} \times \underline{j} =$
 (a) 0 (b) $\underline{j}$ (c) $-\underline{j}$ (d) 1
33. $\underline{u} \times (\underline{v} \cdot \underline{w})$ represents.
 (a) Volume (b) Area
 (c) Scalar Triple product (d) Meaning-less
34. The position vector of a point in yz - plane in given by.
 (a) $\underline{r} = x\underline{i} + y\underline{j}$ (b) $\underline{r} = x\underline{i} + z\underline{k}$ (c) $y\underline{i} + z\underline{k}$ (d) $y\underline{j} + z\underline{k}$
35. If a vector $\underline{r}$ makes angle α, β, γ with x -axis, y -axis of z -axis respectively, then these angles are called.
 (a) Direction angles of $\underline{r}$ (b) Direction cosines of $\underline{r}$
 (c) Direction ratios of $\underline{r}$ (d) None
36. The vectors intersecting at a single point, called.
 (a) Parallel vectors (b) Perpendicular vectors
 (c) Collinear vectors (d) Concurrent vectors
37. The work done when a force $\vec{F} = F\underline{i} - 5\underline{j}$ moves then point $(0,1)$ to the point $(5,3)$ in straight line is given as.
 (a) 10 Units (b) -10 Units (c) 5 Units (d) 12 Units
38. If $P = (2, 3)$ and $Q = (6, -2)$, then $\vec{PQ} =$.
 (a) $4\underline{i} + 5\underline{j}$ (b) $-4\underline{i} + 5\underline{j}$ (c) $4\underline{i} - 5\underline{j}$ (d) $5\underline{i} - 4\underline{j}$
39. The edges of parallelepiped are $\underline{u} = \underline{i} + 2\underline{j} - \underline{k}$, $\underline{v} = \underline{i} - 2\underline{j} + 3\underline{k}$, $\underline{w} = \underline{i} - 7\underline{j} - 4\underline{k}$ then its volume is
 (a) 24 (b) 0 (c) 48 (d) -48
40. The angle between the vectors $2\underline{i} + 3\underline{j} + \underline{k}$ and $2\underline{i} - \underline{j} - \underline{k}$ is.
 (a) $\frac{\pi}{6}$ (b) $\frac{\pi}{2}$ (c) π (d) $\frac{\pi}{4}$
41. Two vectors $\underline{u} = a_1\underline{i} + a_2\underline{j} + a_3\underline{k}$ and $\underline{v} = b_1\underline{i} + b_2\underline{j} + b_3\underline{k}$ are perpendicular only if $a_1b_1 + a_2b_2 + a_3b_3 =$
 (a) 1 (b) 0 (c) 2 (d) -1
42. If α, β, γ are $45^\circ, 45^\circ, 60^\circ$ respectively then α, β, γ are
 (a) Direction angles (b) Direction ratio
 (c) Direction cosines (d) Note the direction angles