

(EPC02-0001M)

- Two forces, one of 10 N and another of 6 N acts upon a body. The directions of the forces are unknown. The resultant force on the body is
  - A) between 6 and 10 N
  - B) between 4 and 16 N
  - C) more than 6 N
  - D) more than 10 N

(EPC02-0002E)

- Which (one or more) of the following quantities is a vector?
  - A) pressure
  - B) power
  - C) current
  - D) angular momentum

(EPC02-0003H)

- Two forces, equal in magnitude, have a resultant with its magnitude equal to either. The angle between them is
  - A)  $45^\circ$
  - B)  $60^\circ$
  - C)  $90^\circ$
  - D)  $120^\circ$

(EPC02-0004H)

- One of the two rectangular components of a force is 10 N and it makes an angle of  $60^\circ$  with the force. The magnitude of the force is
  - A) 7.1 N
  - B) 14.1 N
  - C) 17.3 N
  - D) 20 N



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(EPC02-0005M)

- If three vectors A, B and C are 12, 5 and 13 in magnitude such that  $C = A + B$ , then the angle between A and B is
  - A)  $60^\circ$
  - B)  $90^\circ$
  - C)  $120^\circ$
  - D) none of these

(EPC02-0006M)

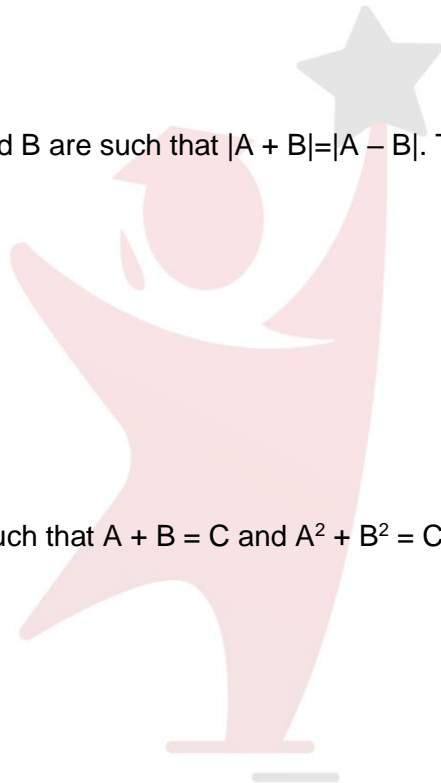
- Two non-zero vectors A and B are such that  $|A + B| = |A - B|$ . The angle between them is
  - A)  $0^\circ$
  - B)  $60^\circ$
  - C)  $90^\circ$
  - D)  $180^\circ$

(EPC02-0007M)

- Two vectors A and B are such that  $A + B = C$  and  $A^2 + B^2 = C^2$ . The angle between them is
  - A)  $0^\circ$
  - B)  $90^\circ$
  - C)  $120^\circ$
  - D)  $180^\circ$

(EPC02-0008M)

- The work done by a force is defined as  $W = F \cdot S$ . In a certain situation F and S are not zero but the work done is zero. From this we conclude that
  - A) F and S are in the same direction
  - B) F and S are in opposite directions
  - C) F and S are at right angles
  - D) none of the above



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(EPC02-0009M)

- If  $A = 4i + 3j - 2k$  and  $B = 8i + 6j - 4k$ , the angle between A and B is
  - $45^\circ$
  - $60^\circ$
  - $0^\circ$
  - $90^\circ$

(EPC02-0010H)

- One of the two forces is double the other and their resultant is equal to the greater force. The angle between them is
  - $\cos^{-1}\left(\frac{1}{2}\right)$
  - $\cos^{-1}\left(-\frac{1}{2}\right)$
  - $\cos^{-1}\left(\frac{1}{4}\right)$
  - $\cos^{-1}\left(-\frac{1}{4}\right)$

(EPC02-0011M)

- The resultant of two forces of magnitudes 5 N and 10 N cannot be
  - 4 N
  - 6 N
  - 9 N
  - 13 N

(EPC02-0012M)

- Two vectors A and B lie in a plane. Another vector C lies outside this plane. Then  $A + B + C$ 
  - can be zero
  - cannot be zero
  - lies in the plane containing  $A + B$
  - lies in the plane containing  $A - B$



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(EPC02-0013M)

- A particle is simultaneously acted upon by two forces, one of 3 N and the other of 4 N. The net force on the particle is
  - A) 7 N
  - B) 5 N
  - C) 1 N
  - D) between 1 N and 7 N

(EPC02-0014H)

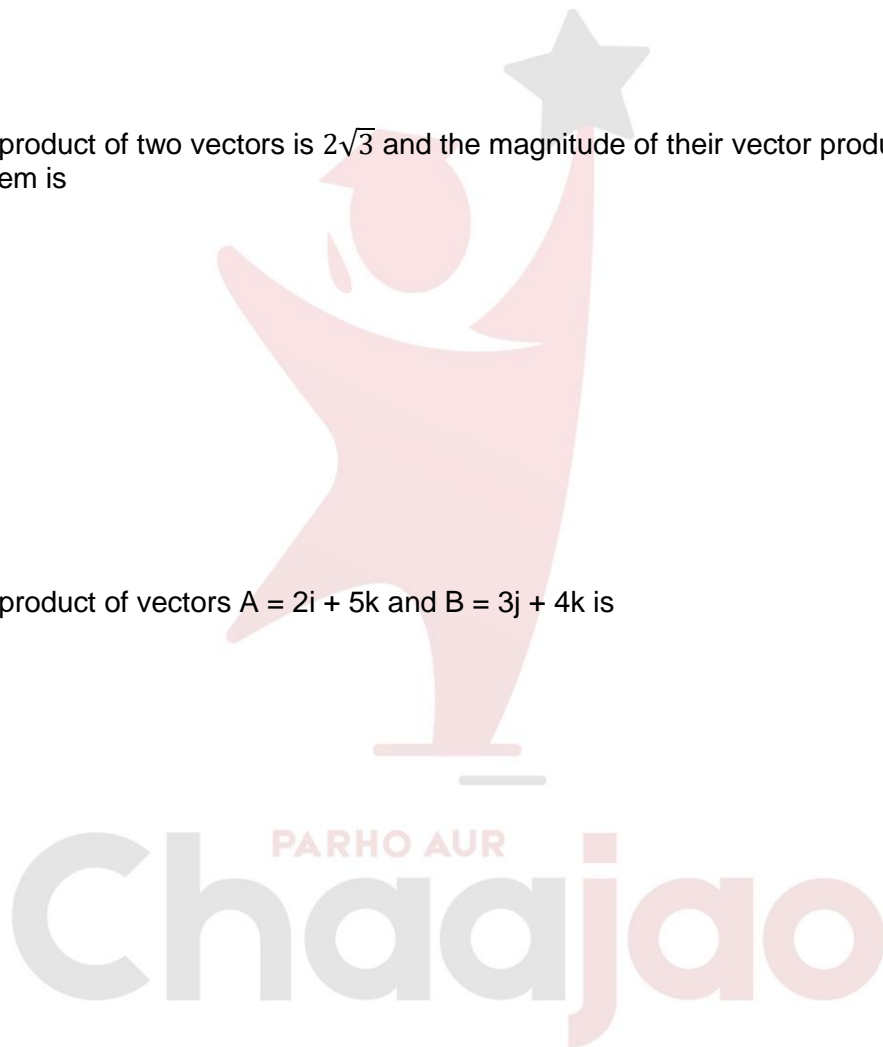
- The scalar product of two vectors is  $2\sqrt{3}$  and the magnitude of their vector product is 2. The angle between them is
  - A)  $30^\circ$
  - B)  $45^\circ$
  - C)  $60^\circ$
  - D)  $90^\circ$

(EPC02-0015M)

- The scalar product of vectors  $A = 2i + 5k$  and  $B = 3j + 4k$  is
  - A) 20
  - B) 23
  - C)  $5\sqrt{33}$
  - D) 26

(EPC02-0016M)

- Two vectors A and B are such that  $|A| = |B| = |A - B|$ . The angle between them is
  - A)  $0^\circ$
  - B)  $60^\circ$
  - C)  $90^\circ$
  - D)  $120^\circ$



(EPC02-0017E)

- Pick out the only vector quantity

- A) pressure
- B) impulse
- C) gravitational potential
- D) coefficient of friction

(EPC02-0018E)

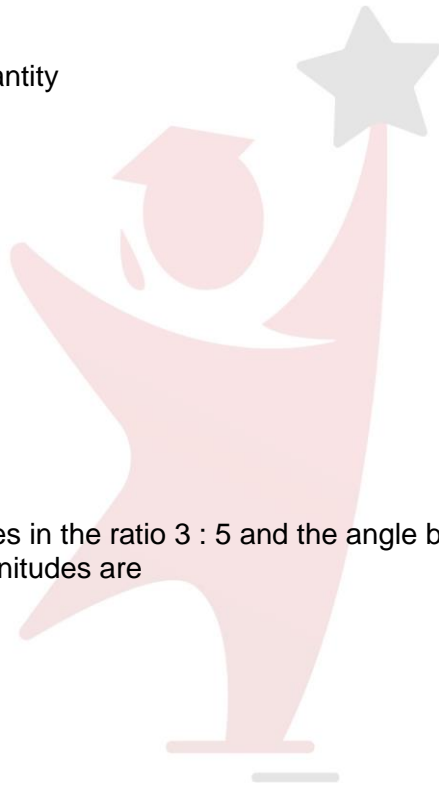
- Pick out the only scalar quantity

- A) power
- B) electric field
- C) magnetic moment
- D) average velocity

(EPC02-0019H)

- Two forces have magnitudes in the ratio 3 : 5 and the angle between their directions is  $60^\circ$ . if their resultant is 35 N, their magnitudes are

- A) 12 N, 20 N
- B) 15 N, 25 N
- C) 18 N, 30 N
- D) 21 N, 28 N



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(EPC02-0020E)

- Which of the following is example of a scalar quantity?

- A) Velocity
- B) Force
- C) Angular momentum
- D) Electrostatic potential

(EPC02-0021M)

- Which of the following vectors is/are perpendicular to the vector  $4i - 3j$ ?
  - A)  $4i + 3j$
  - B)  $6i$
  - C)  $7k$
  - D)  $3i - 4j$

(EPC02-0022M)

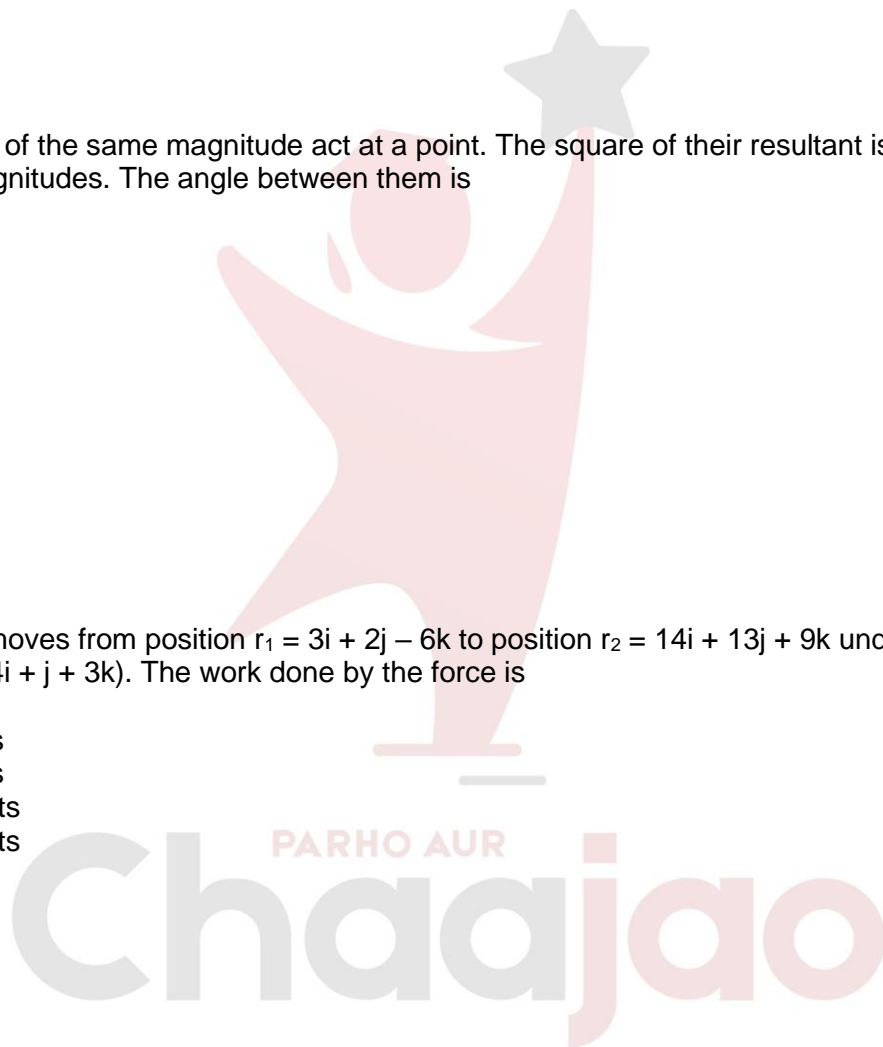
- Two forces of the same magnitude act at a point. The square of their resultant is 3 times the product of their magnitudes. The angle between them is
  - A)  $0^\circ$
  - B)  $30^\circ$
  - C)  $60^\circ$
  - D)  $90^\circ$

(EPC02-0023H)

- A particle moves from position  $r_1 = 3i + 2j - 6k$  to position  $r_2 = 14i + 13j + 9k$  under the action of a force  $F = (4i + j + 3k)$ . The work done by the force is
  - A) 50 units
  - B) 75 units
  - C) 100 units
  - D) 200 units

(EPC02-0024E)

- Which of the following is a scalar quantity?
  - A) electric current
  - B) electric field
  - C) acceleration
  - D) linear momentum



(EPC02-0025M)

- If  $|V_1 + V_2| = |V_1 - V_2|$  and  $V_1$  and  $V_2$  are finite, then
  - A)  $V_1$  is parallel to  $V_2$
  - B)  $V_1 = V_2$
  - C)  $|V_1| = |V_2|$
  - D)  $V_1$  and  $V_2$  are mutually perpendicular



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Answer key	
1	B
2	D
3	D
4	D
5	B
6	C
7	B
8	C
9	C
10	D
11	A
12	B
13	D
14	A
15	A
16	B
17	B
18	A
19	B
20	D
21	C
22	C
23	C
24	A
25	D