

(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)

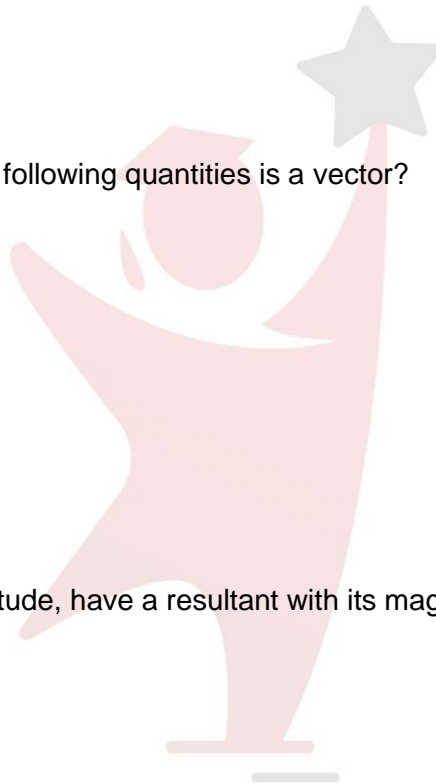
- Which (one or more) of the following quantities is a vector?
  - A) pressure
  - B) power
  - C) current
  - D) angular momentum

(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)

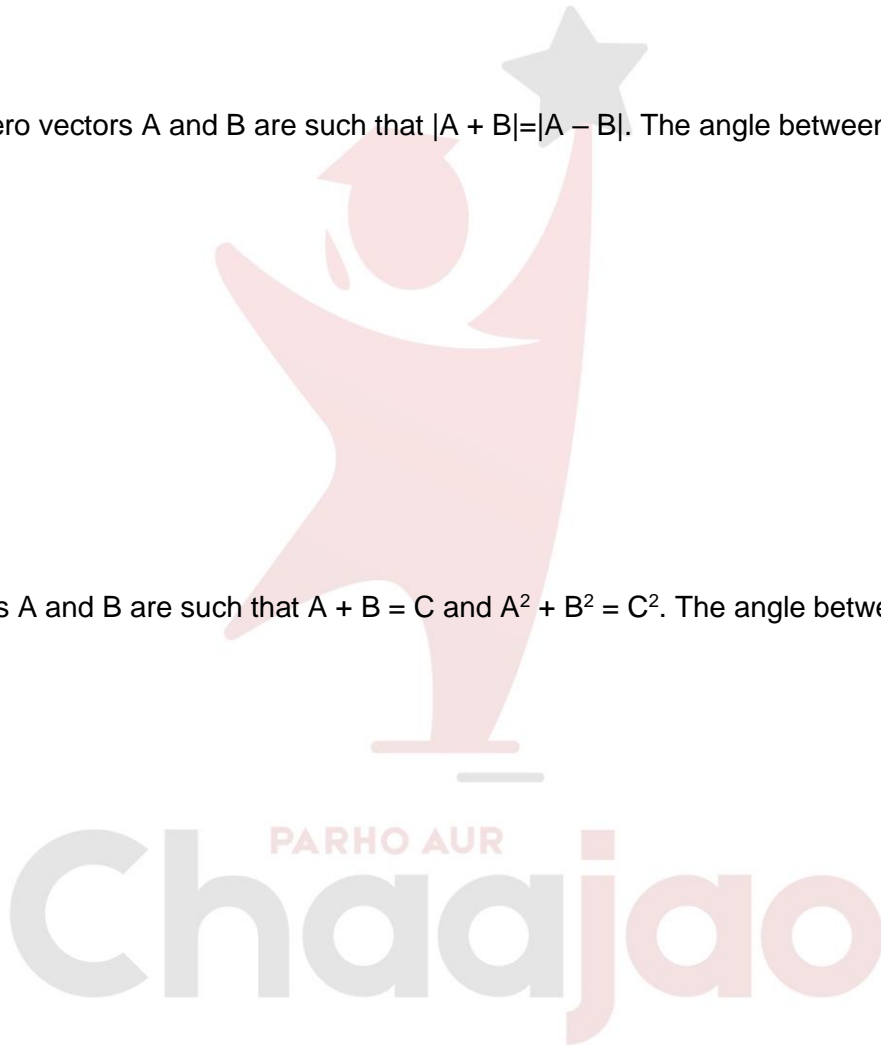
- Two non-zero vectors A and B are such that  $|A + B| = |A - B|$ . The angle between them is
  - A)  $0^\circ$
  - B)  $60^\circ$
  - C)  $90^\circ$
  - D)  $180^\circ$

(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



(EPC02-0009M)

- If  $A = 4i + 3j - 2k$  and  $B = 8i + 6j - 4k$ , the angle between A and B is

- A)  $45^\circ$
- B)  $60^\circ$
- C)  $0^\circ$
- D)  $90^\circ$

(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

- A)  $\cos^{-1}\left(\frac{1}{2}\right)$
- B)  $\cos^{-1}\left(-\frac{1}{2}\right)$
- C)  $\cos^{-1}\left(\frac{1}{4}\right)$
- D)  $\cos^{-1}\left(-\frac{1}{4}\right)$

(EPC02-0011M)

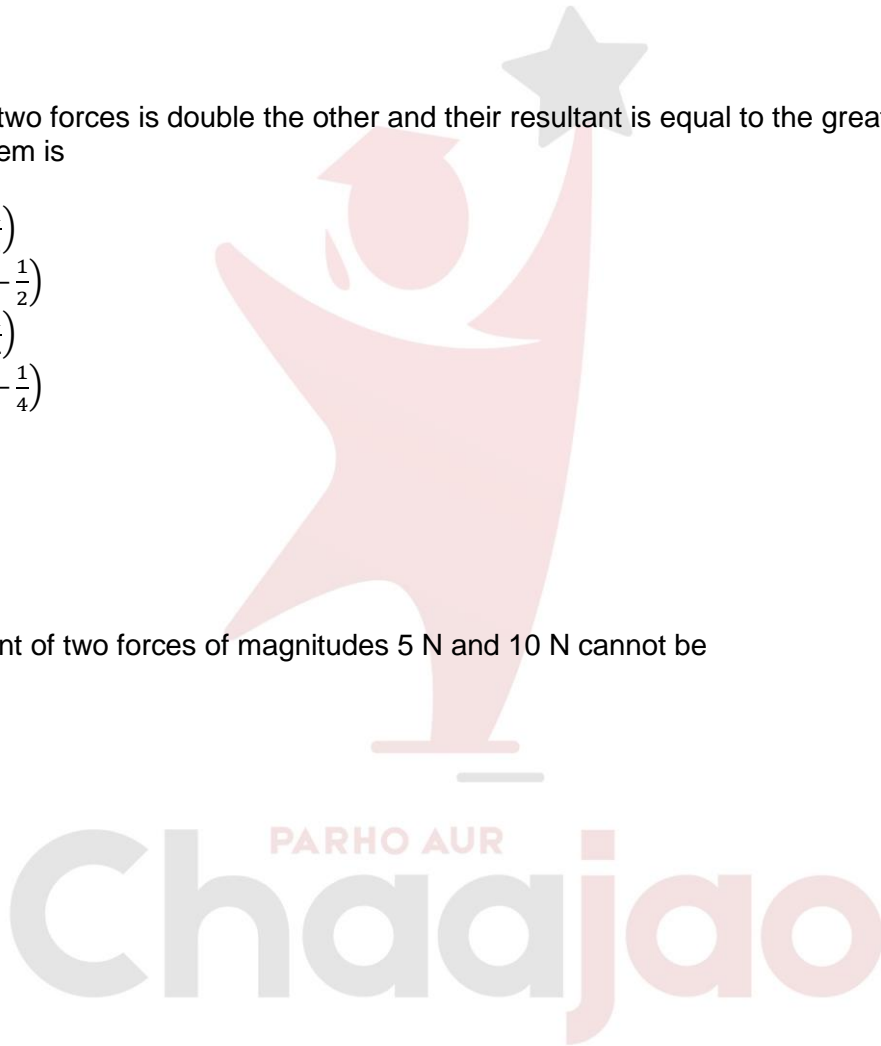
- The resultant of two forces of magnitudes 5 N and 10 N cannot be

- A) 4 N
- B) 6 N
- C) 9 N
- D) 13 N

(EPC02-0012M)

- Two vectors A and B lie in a plane. Another vector C lies outside this plane. Then  $A + B + C$

- A) can be zero
- B) cannot be zero
- C) lies in the plane containing  $A + B$
- D) lies in the plane containing  $A - B$



(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)

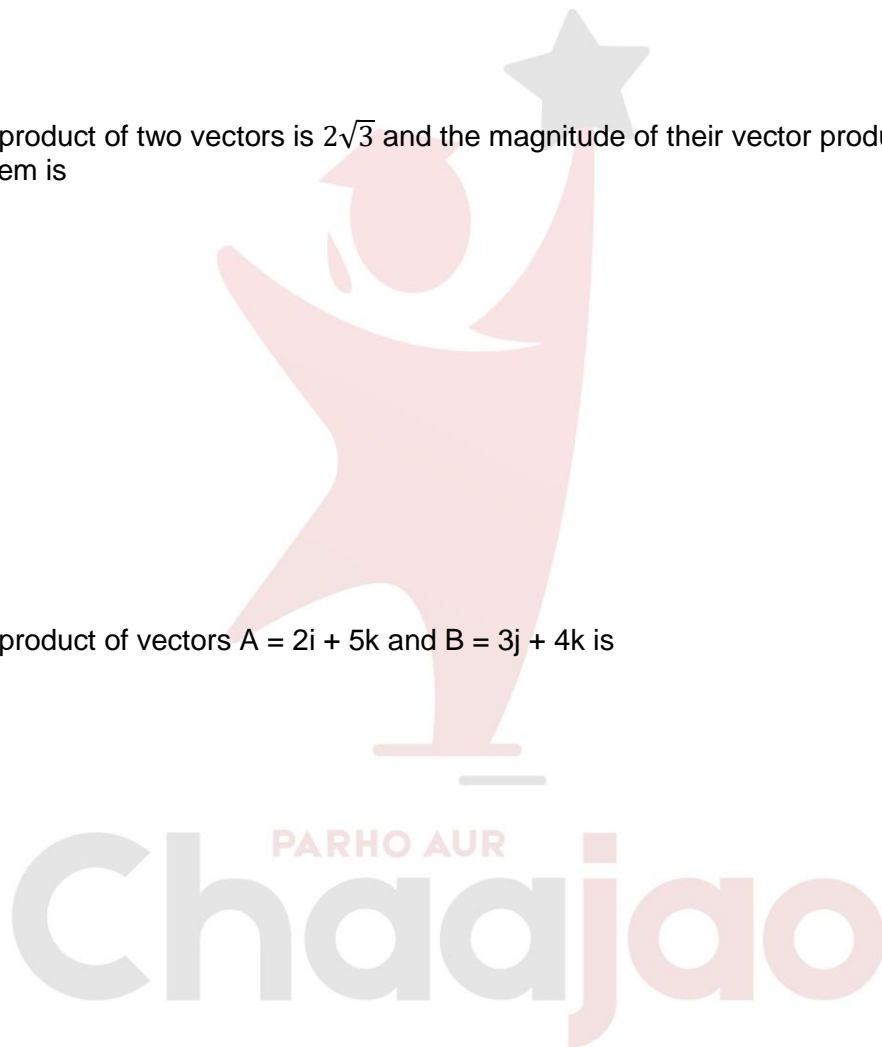
- The scalar product of two vectors is  $2\sqrt{3}$  and the magnitude of their vector product is 2. The angle between them is
  - A)  $30^\circ$
  - B)  $45^\circ$
  - C)  $60^\circ$
  - D)  $90^\circ$

(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)

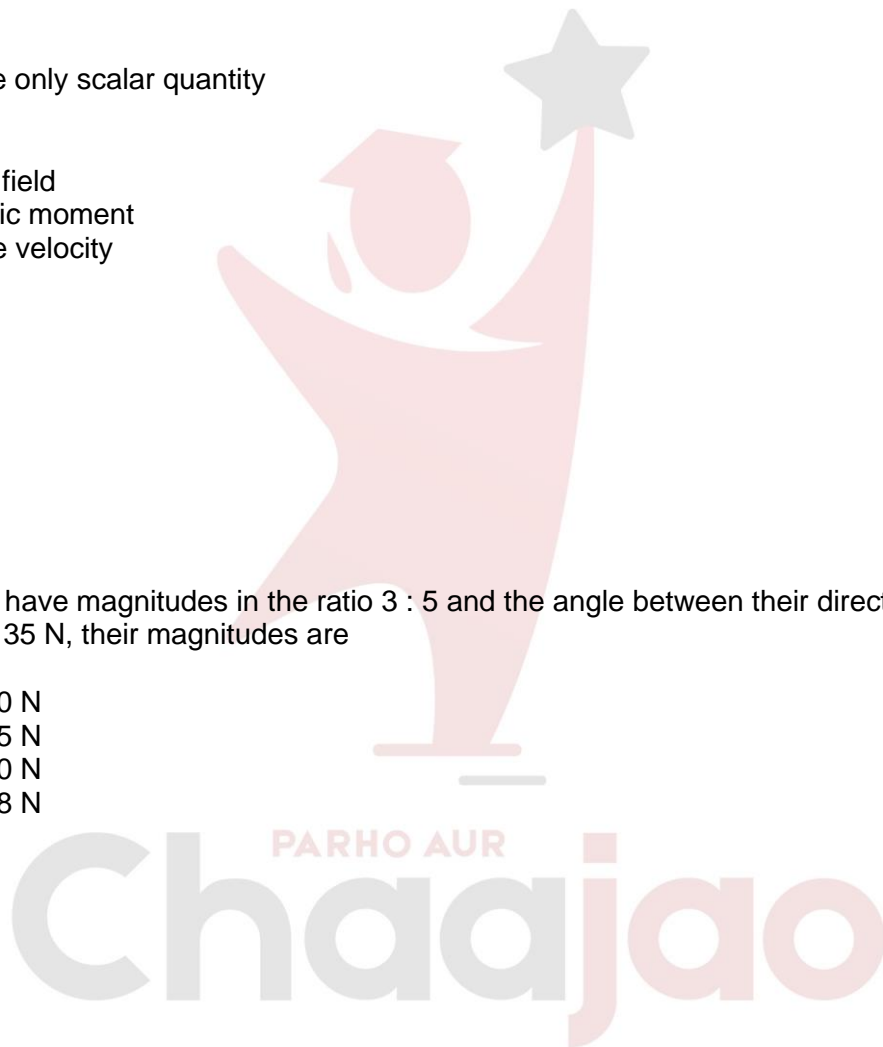
- Pick out the only scalar quantity
  - A) power
  - B) electric field
  - C) magnetic moment
  - D) average velocity

(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

(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)

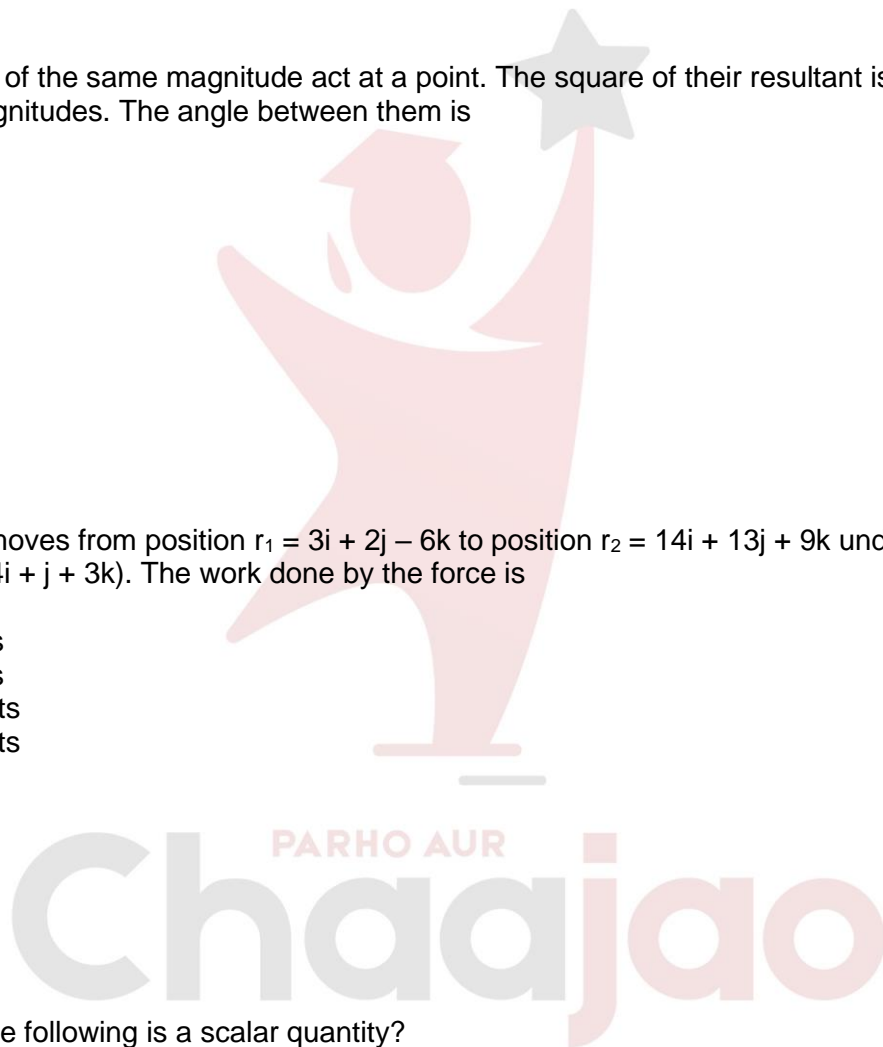
- Two forces of the same magnitude act at a point. The square of their resultant is 3 times the product of their magnitudes. The angle between them is  
A)  $0^\circ$   
B)  $30^\circ$   
C)  $60^\circ$   
D)  $90^\circ$

(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 |

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