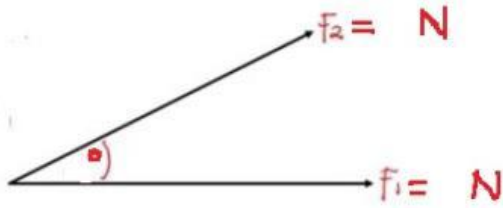


# SOAL NO 1

Dua buah vektor gaya  $F_1$  dan  $F_2$  masing-masing besarnya 5 N dan 12 N, bertitik tangkap sama dan saling mengapit sudut  $60^\circ$ , nilai resultan dari kedua vektor tersebut ...

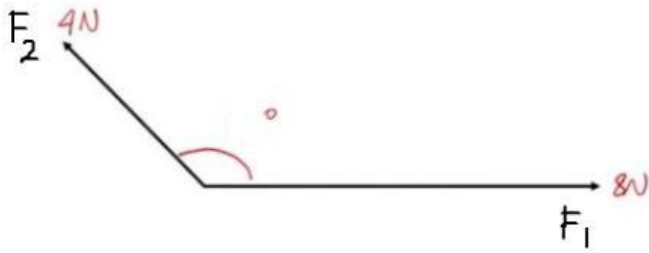
- A. 7,00
- B. 15,00
- C. 15,13
- D. 17,00
- E. 17,25



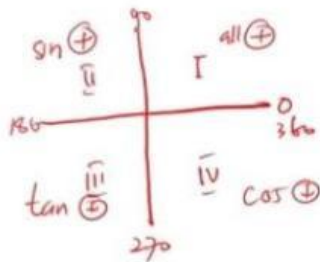
$$\begin{aligned}\Sigma F &= \sqrt{F_1^2 + F_2^2 + 2 \cdot F_1 \cdot F_2 \cos \theta} \\ &= \sqrt{5^2 + 12^2 + 2 \cdot 5 \cdot 12 \cos 60^\circ} \\ &= \sqrt{25 + 144 + 120 \cdot 0,5} \\ &= \sqrt{25 + 144 + 60} \\ &= \sqrt{229} \\ &= 15,13\end{aligned}$$

## SOAL NO 2

Dua buah vektor gaya masing – masing 8 N dan 4 N saling mengapit sudut  $120^\circ$ . Tentukan besar resultan kedua vektor tersebut!



$$\# \cos 120 = \cos (180 - 60) \\ = -\cos 60 \\ = -\frac{1}{2}$$



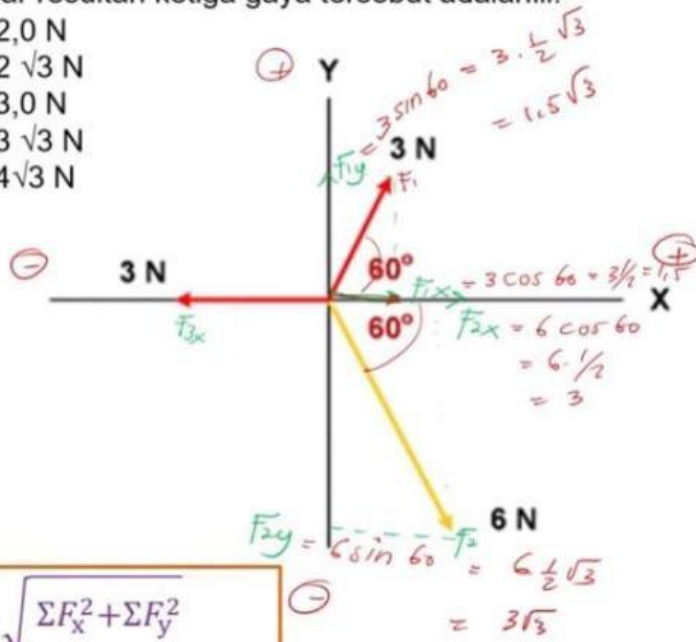
$$\begin{aligned} \Sigma F &= \sqrt{F_1^2 + F_2^2 + 2 \cdot F_1 \cdot F_2 \cos \theta} \\ &= \sqrt{8^2 + 4^2 + 2 \cdot 8 \cdot 4 \cdot \cos 120} \\ &= \sqrt{64 + 16 + 2 \cdot 8 \cdot 4 \cdot (-\frac{1}{2})} \\ &= \sqrt{64 + 16 - 64} \\ &= \sqrt{16} \\ &= 4 \end{aligned}$$

### SOAL NO 3

Perhatikan gambar gaya-gaya di bawah ini!

Besar resultan ketiga gaya tersebut adalah....

- A. 2,0 N
- B.  $2\sqrt{3}$  N
- C. 3,0 N
- D.  $3\sqrt{3}$  N
- E.  $4\sqrt{3}$  N



$$F_y = F \sin \theta$$

$$F_x = F \cos \theta$$

$$\Sigma F_x = 1 + - = 1$$

$$\Sigma F_y = \sqrt{3} - \sqrt{3} = -\sqrt{3}$$

$$\Sigma F = \sqrt{\Sigma F_x^2 + \Sigma F_y^2}$$

$$= \sqrt{(1)^2 + (-\sqrt{3})^2}$$

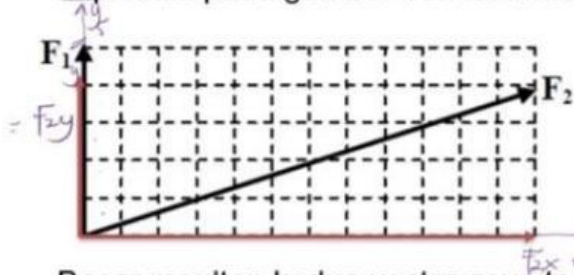
$$= \sqrt{1 + 3}$$

$$= \sqrt{4}$$

$$= 2 \text{ N}$$

# SOAL NO 4

Tiap skala pada gambar berikut ini setara dengan gaya 1 N



$$\begin{aligned} F_{1x} &= N & F_{1y} &= N \\ F_{2x} &= N & F_{2y} &= N \\ \hline \Sigma F_x &= N & \Sigma F_y &= N \end{aligned}$$

Besar resultan kedua vector gaya tersebut adalah...

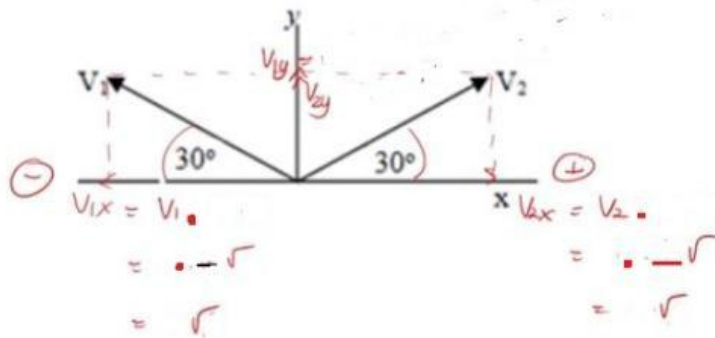
- A. 13 N
- B. 15 N
- C. 17 N
- D. 18 N
- E. 21 N

$$\begin{aligned} \Sigma F &= \sqrt{\Sigma F_x^2 + \Sigma F_y^2} \\ &= \sqrt{2^2 + 2^2} \\ &= \sqrt{4 + 4} \\ &= \sqrt{8} \\ &= 2\sqrt{2} \end{aligned}$$

# SOAL NO 5

Diketahui  $v_1 = 20$  satuan dan  $v_2 = 20$  satuan. Besar vektor resultan adalah....

- A. 20
- B. 12
- C. 6
- D. 4
- E. 3



$$\# \sum F_x = \sqrt{3} - \sqrt{3} = 0$$

$$\# \sum F_y = 10 + 10 = 20$$

$$\underline{\underline{\sum F = \sum = 20 \text{ (N)}}}$$