

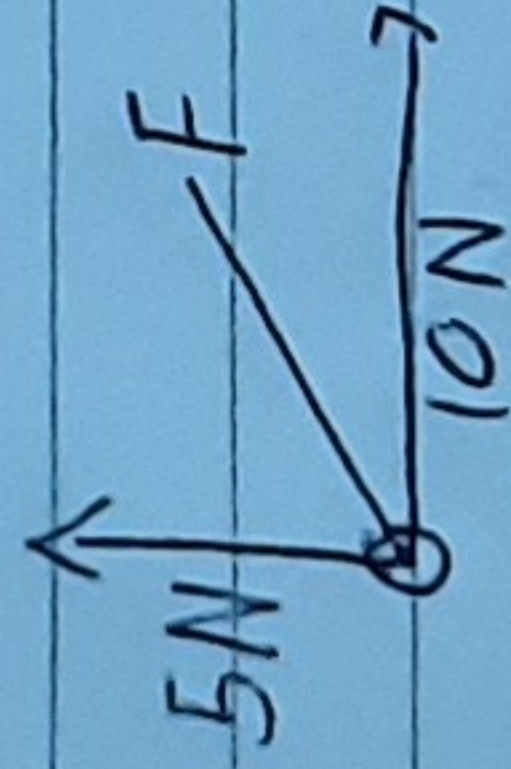
1.

- a) Square meter = m^2
- b) Cubic meter = m^3
- c) Kilogram = kg
- d) Newton = N
- e)

2. 4 Kilogram per square meter

3.

a.



$$\text{Resultant} = 30 + 6.245 \quad 5 + 10 = F$$

$$F^2 = 5^2 + 10^2 \quad \tan \theta = \frac{5}{10}$$

$$F^2 = 25 + 100$$

$$F^2 = 125$$

$$F = \sqrt{125}$$

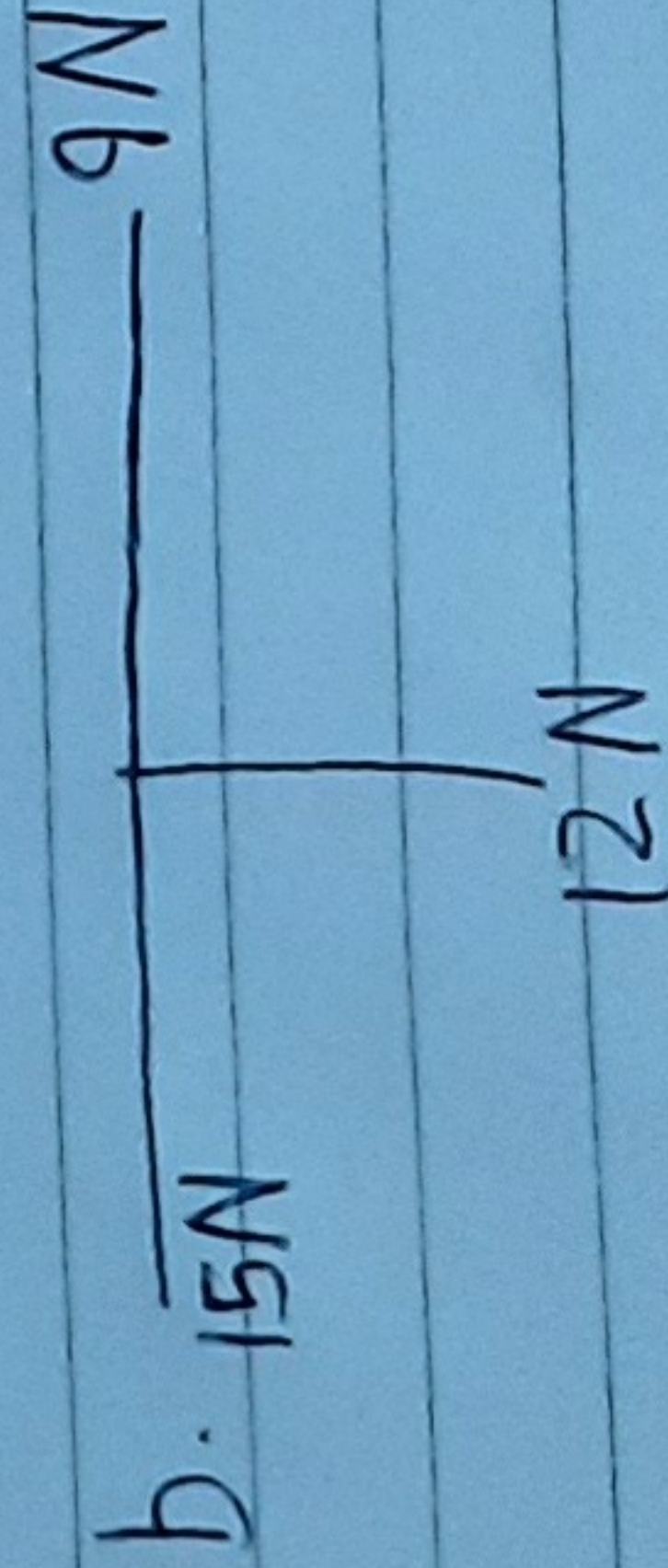
$$F = 11.18 \text{ N}$$

$$\theta = \tan^{-1} \left(\frac{5}{10} \right)$$

$$\theta = 26.57^\circ$$

The resultant third force is 11.18 N to the right, 26.57° above the horizontal

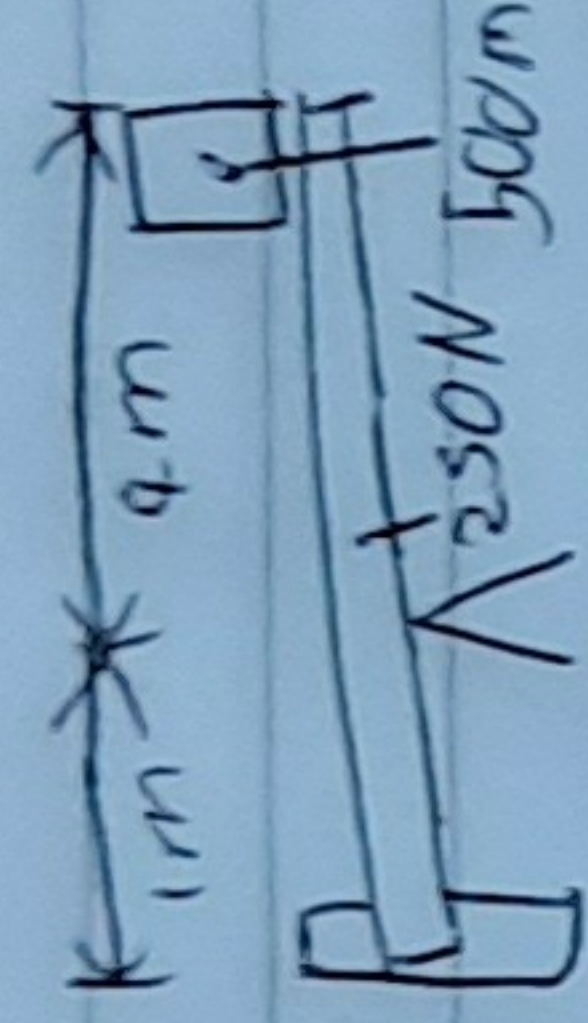
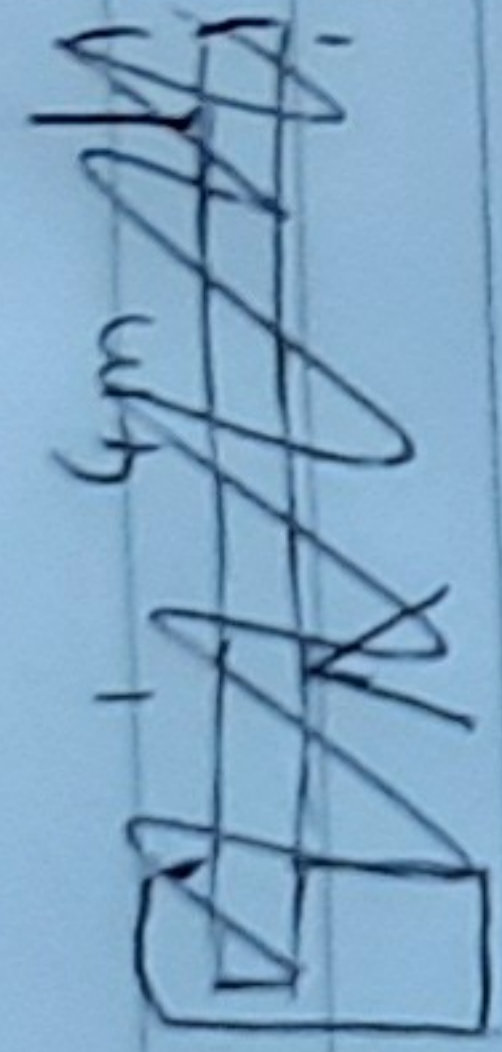
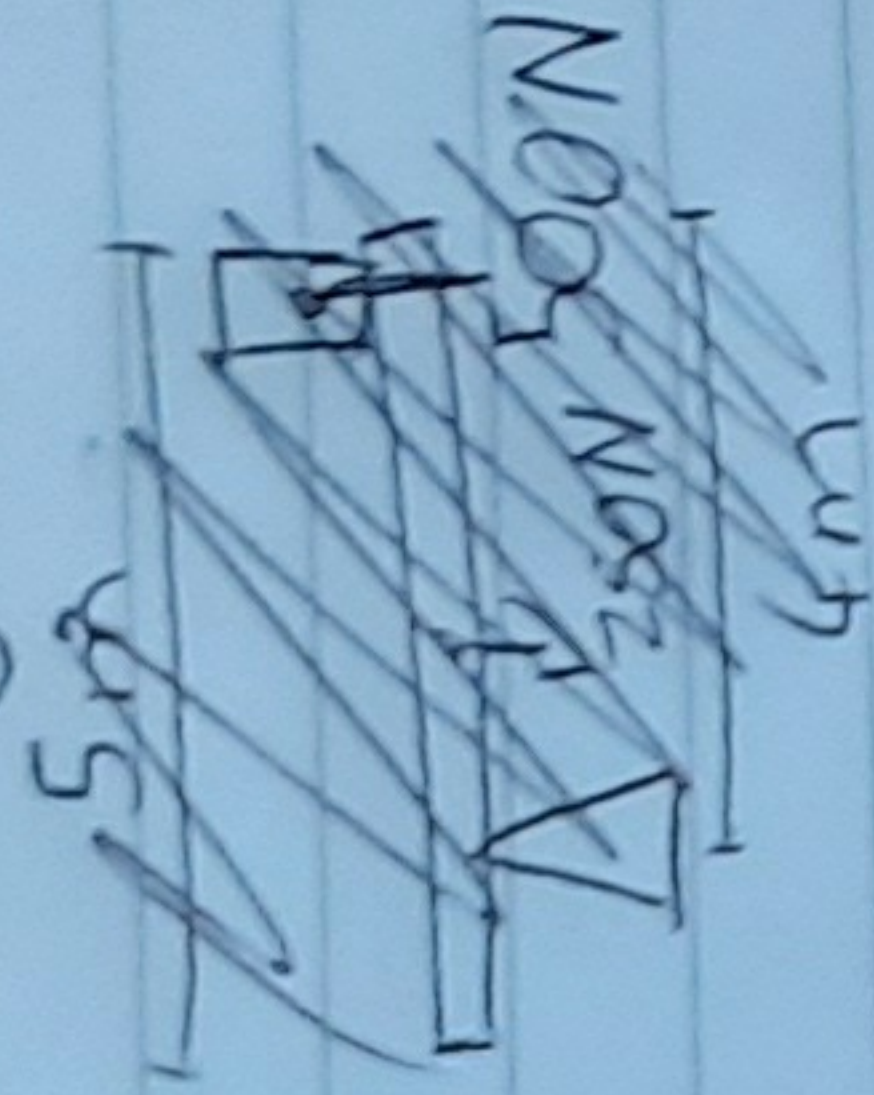
Bearing: $90 + 26.57 = 116.57$



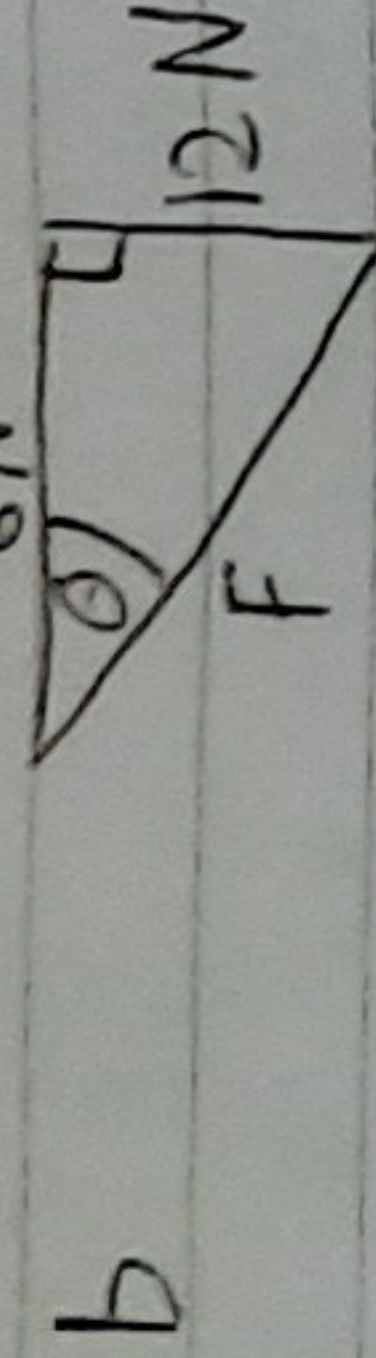
$$\text{Resultant} = -15 + 9 = -6$$

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5.



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$$F^2 = 6^2 + 12^2$$

$$F^2 = 36 + 144$$

$$F^2 = 180$$

$$F = \sqrt{180}$$

$$F = 13.42 \text{ N}$$

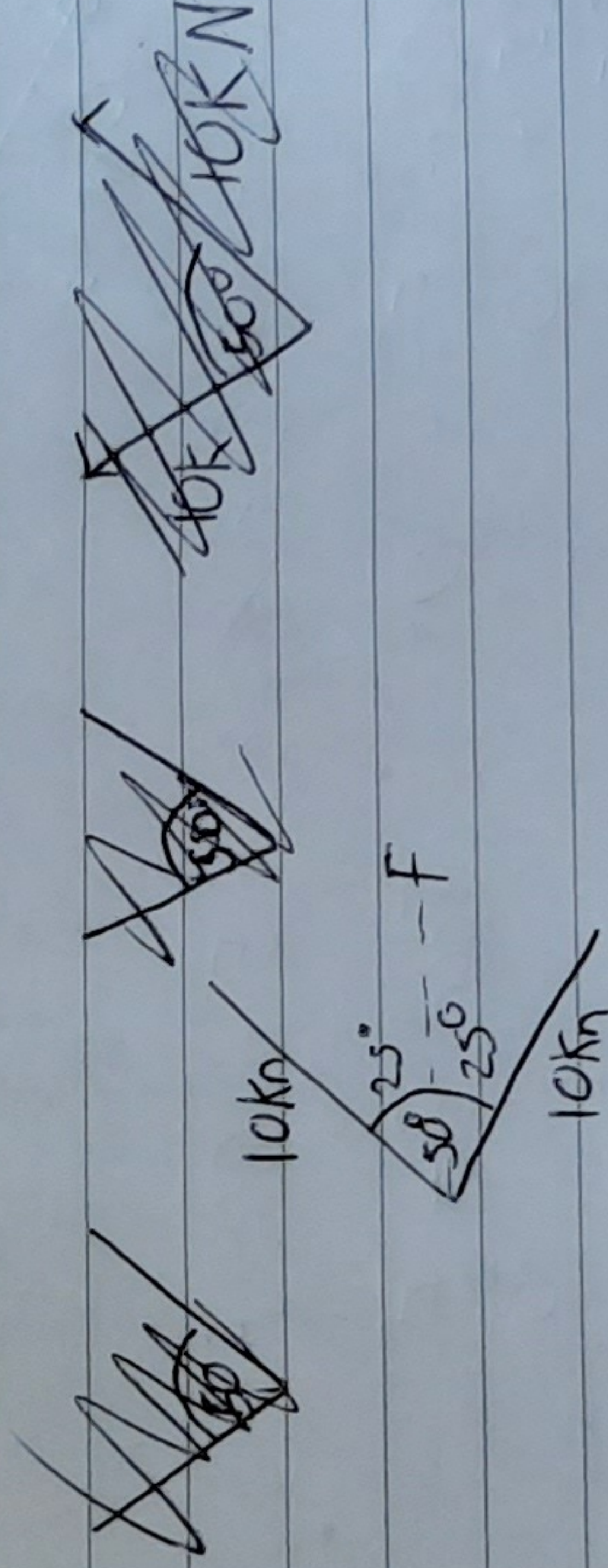
$$\tan \theta = \frac{12}{6}$$

$$\theta = \tan^{-1}\left(\frac{12}{6}\right)$$

$$\theta = 63.43^\circ$$

The resultant third force is 13.42 N to the left, 63.43° above the horizontal
Bearing = $90 + 63.43 = 153.43$

4.



$$\text{a) } 10 \text{ kN} = 10000$$

$$F^2 = 10000^2 + 10000^2$$

$$F^2 = 200000000$$

$$F = \sqrt{200000000}$$

$$F = 44721.36 \text{ N}$$