

Deniss Gavrilovs 2103705

ACHA3000

14/01/2022

V/S

1. a. M^2

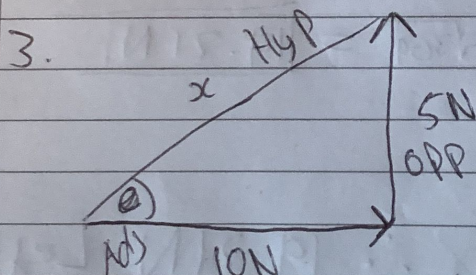
b. M^3

c. Kg

d. N

e. ~~Kg/m/s~~ N

2. Kg/m^3



$$x = \sqrt{5^2 + 10^2}$$

$$x = \sqrt{125}$$

$$x = \boxed{11.18 \text{ N}}$$

$$\tan \theta = \frac{5}{10}$$

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

$$\theta = 26.57^\circ$$

$$90 - 26.57 = 63.43^\circ$$

$\therefore 11.18 \text{ N Right}$

26.57° above
horizontal

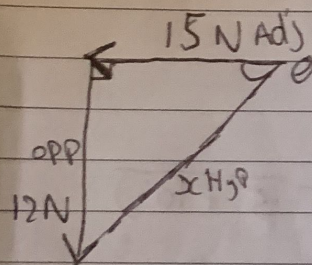
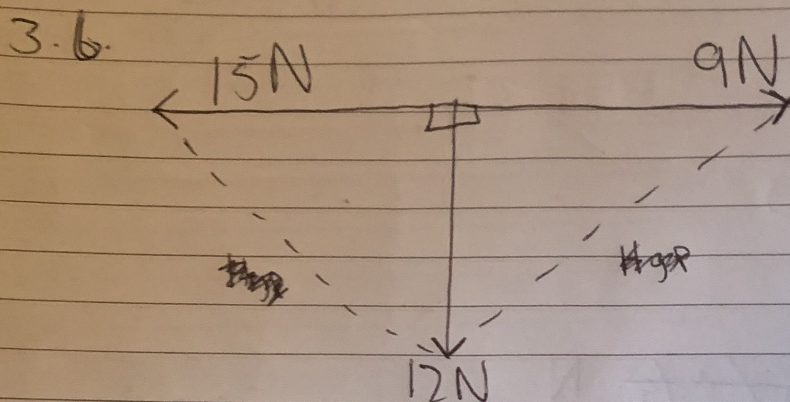
Bearing of 63.43°

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$$x = \sqrt{(12^2 + 15^2)} \rightarrow x = \sqrt{(144 + 225)}$$

$$x = \sqrt{369} = \boxed{19.21 \text{ N}}$$

$$\tan \theta = \frac{12}{15}$$

$$\theta = \tan^{-1}\left(\frac{12}{15}\right)$$

$$\theta = 38.66^\circ$$

$\therefore 19.21 \text{ N Left}$

38.66° Below horizontal

$$90 - 38.66 = 51.34$$

~~Bearing of 51.34°~~

$$180 + 38.66 = 218.66^\circ$$
$$238.66^\circ$$

Bearing of ~~48.66°~~

238.66°

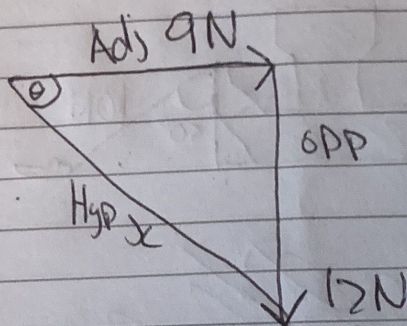
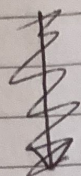
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3.6



$$x = \sqrt{(9^2 + 12^2)} = \sqrt{81 + 144} = \sqrt{225}$$

$$x = 15 \text{ N}$$

$\therefore 15 \text{ N Right}$

$$\tan \theta = \frac{12}{9}$$

53.13° below horizontal

$$\theta = \tan^{-1}\left(\frac{12}{9}\right)$$

$$\theta = 53.13^\circ$$

Bearing of 143.13°

$$90 + 53.13 = 143.13^\circ$$

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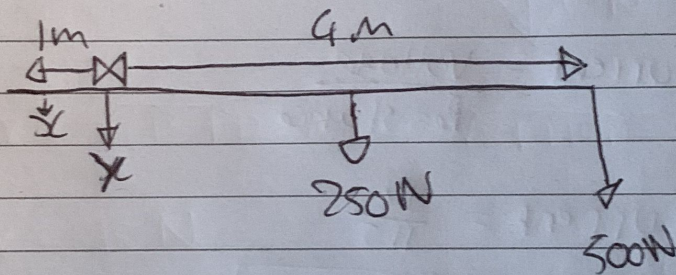
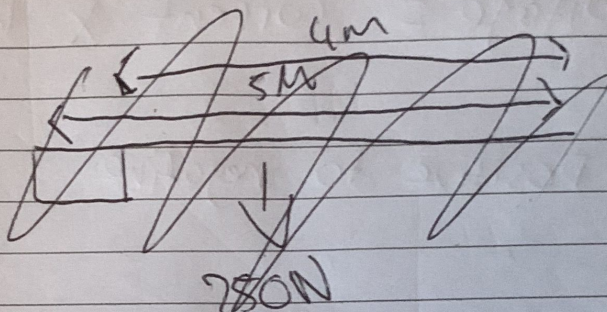
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5.



$$1 \times x = 4 \times 500$$

$$\frac{1 \times x}{1} = \frac{2000 \text{ Nm}}{1}$$
$$x = 2000 \text{ Nm}$$

a. $x = 2000 \text{ Nm}$

b.

b.

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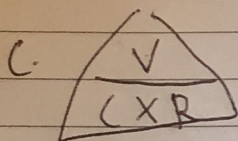
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b. ~~12V~~ Voltage = Current $\times$ Resistance

a. ~~12V~~ A Positive to negative

b. 11.5Ω



$$\text{Current} = \frac{\text{Voltage}}{\text{Resistance}}$$

$$\text{Current} = \frac{12}{11.5}$$

$$\text{Current} = \boxed{1.04 \text{ A}}$$

d. 12V

e. ~~$(0.5 \times 1.04) + (2 \times 1.04) = 2 \text{ A}$~~

f.

g.