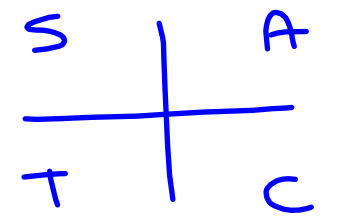


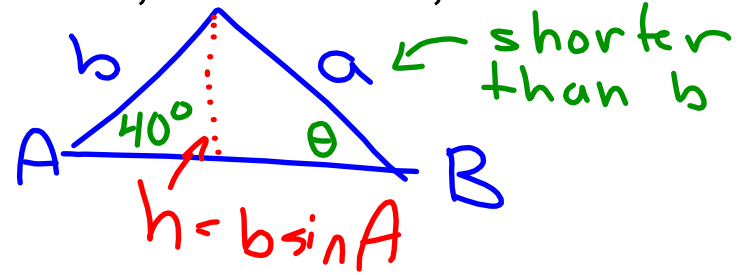
Review - Trigonometry



Tools: Pythagorean Theorem, SOH CAH TOA, Sine Law, Cosine Law

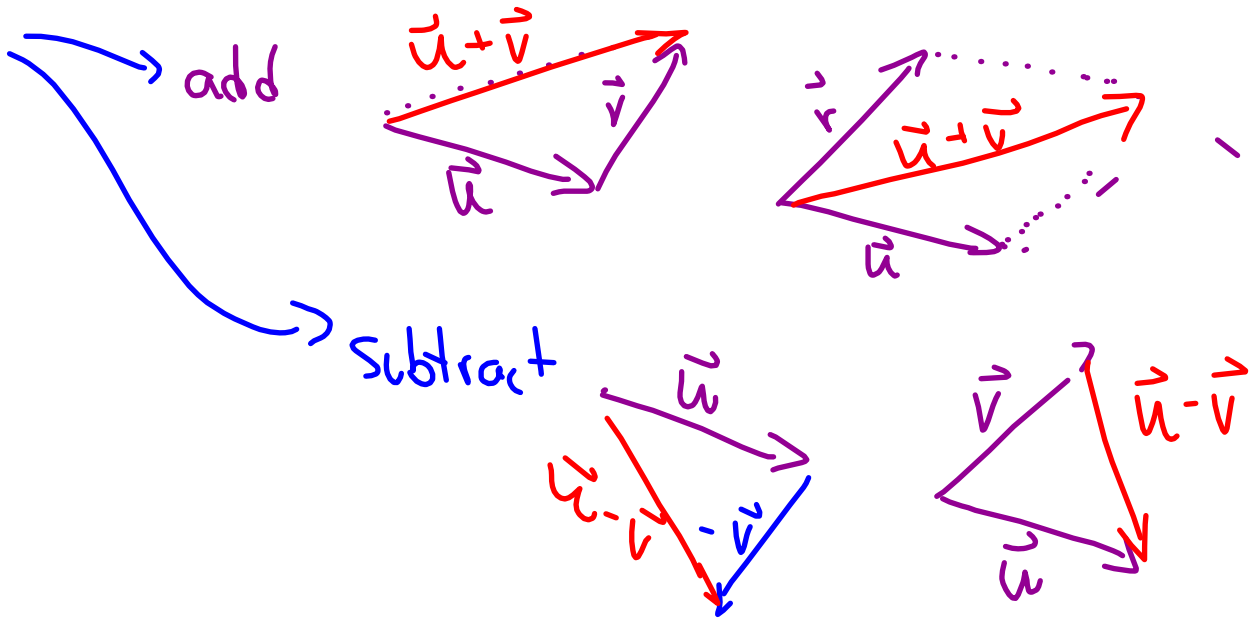
- Ambiguous case of Sine Law

↳ two options: B and $180 - B$



Vectors

- Definition → vector has magnitude and direction.
- Bearings → 3 types
- Components → $v_v = |v| \sin \theta$; $v_h = |v| \cos \theta$
- Adding and Subtracting
- Problem Solving



Sinusoidal Functions

- Amplitude (a)
- Period $\frac{360}{b}$
- Phase Shift (d)
- Center Line (c)
- Create graphs / Create Equations

$$y = a \sin [b(x-d)] + c$$

Example 1: A water skier is being pulled by a plane. The force of the rope is 25 N [20° above the horizontal]. Determine the vertical and horizontal components of this force.

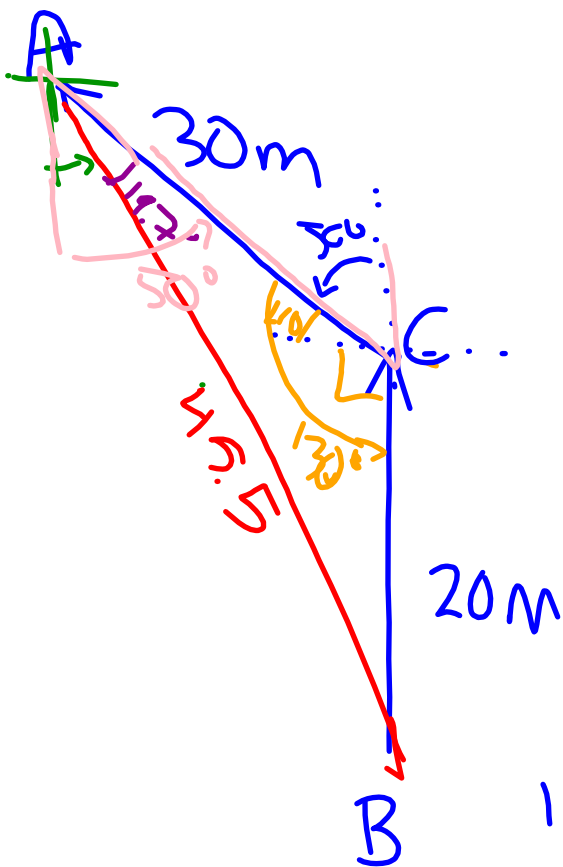


$$\text{vertical: } V_v = 25 \sin 20^\circ = 8.6 \text{ N}$$

$$\text{horizontal: } V_h = 25 \cos 20^\circ = 23.5 \text{ N}$$



Example 2: A student walks 20m [N] across a field, then turns [N50W] and walks another 30m when they realize they dropped their phone back where they started. What distance and direction must they travel to go directly back to their phone?



$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$c^2 = 20^2 + 30^2 - 2(20)(30) \cos 130^\circ$$

$$C = 45.5$$

$$\frac{\sin A}{20} = \frac{\sin 30}{45.5}$$

$$A = 19.7^\circ$$

$$50 - 19.7 = 30.3^\circ$$

They walk
45.5m [S 30.3° E]

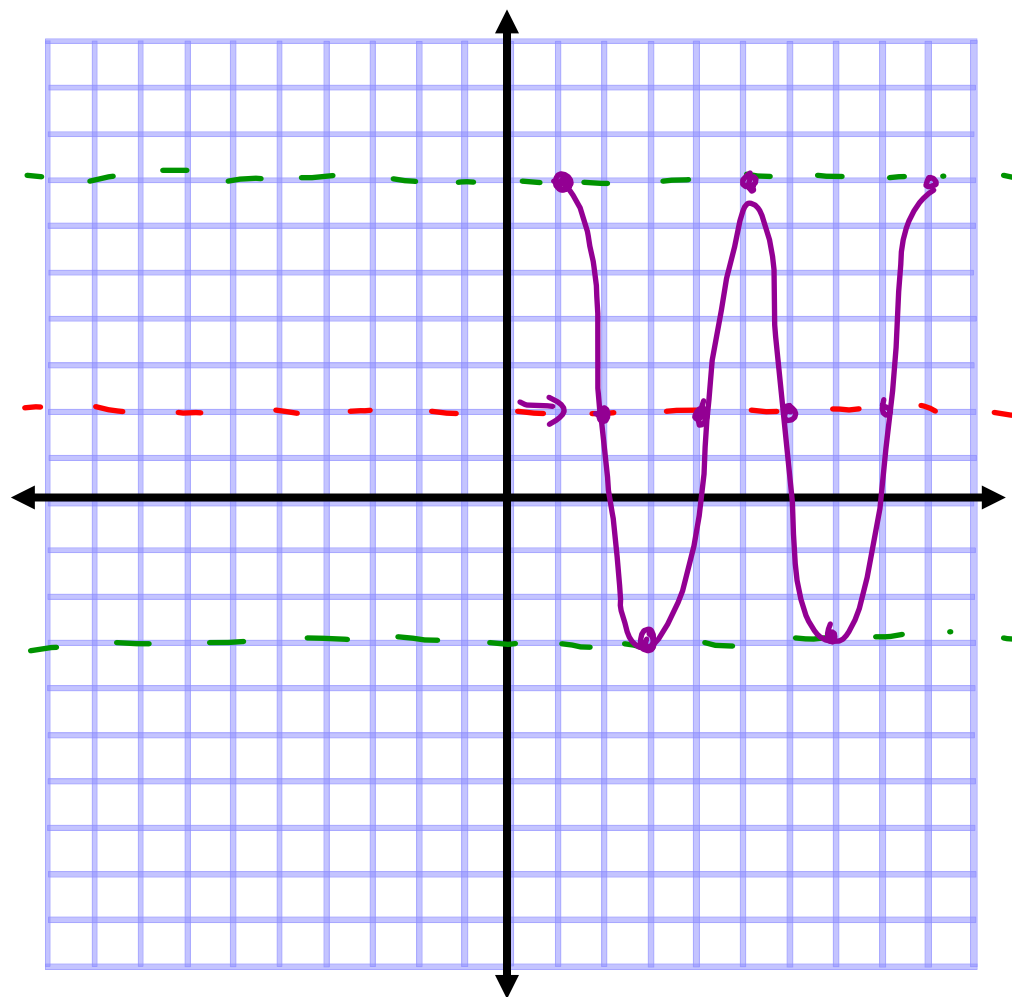
Example 3: Sketch the graph of $y = 5\underline{\cos}[90(x - 1)] + 2$

amp: 5

period: $\frac{360}{90} = 4$; $4 \div 4 = 1$

phase shift: 1 (right)

centre: 2.



pg. 156 #1 - 3, 14-17, 26, 28, 29, 31, 32

