

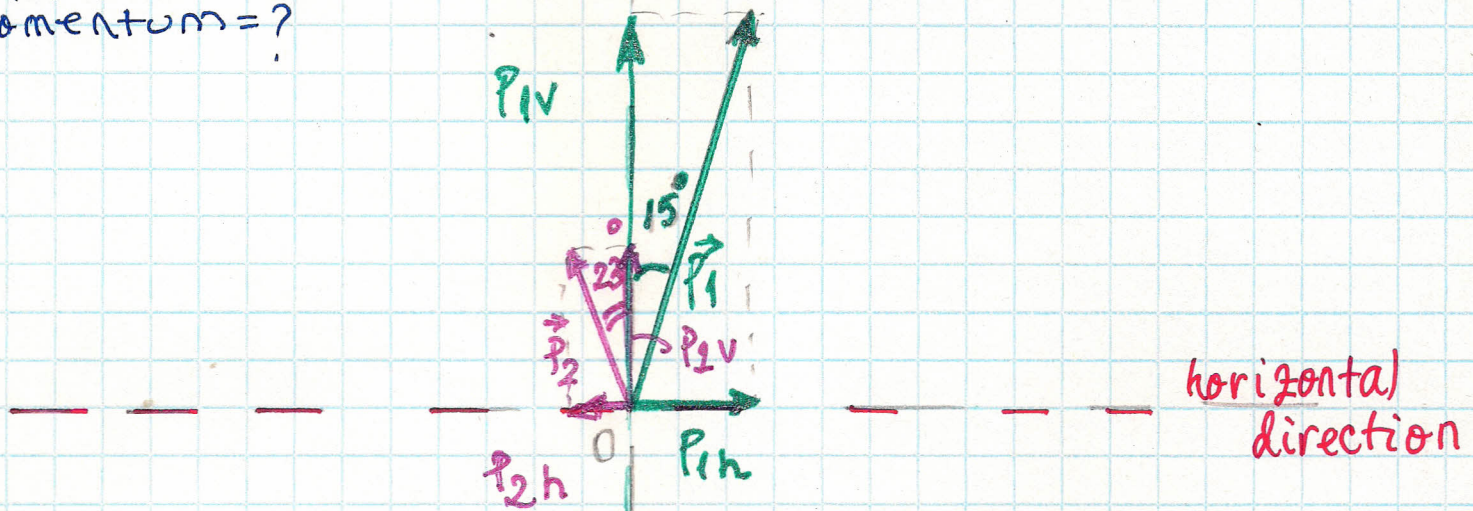
Vector addition Practice  
 Problem - Curling  
 Stones  
 momentum

vertical direction  
 center line

Stone 1 :  $p_1 = 72.0 \text{ kg} \cdot \text{m} \cdot \text{s}^{-1}$

Stone 2 :  $p_2 = 12.0 \text{ kg} \cdot \text{m} \cdot \text{s}^{-1}$

total (resultant)  
 momentum = ?



$$p_{1H} = p_1 \cdot \sin 15^\circ$$

$$p_{1V} = p_1 \cdot \cos 15^\circ$$

$$p_{2H} = p_2 \cdot \sin 23^\circ$$

$$p_{2V} = p_2 \cdot \cos 23^\circ$$

$$p_V = p_{1V} + p_{2V} = \dots$$

$$p_H = p_{1H} - p_{2H} = \dots$$

$$p = \sqrt{p_V^2 + p_H^2} \rightarrow \text{magnitude}$$

$$\theta = \tan^{-1} \left( \frac{p_H}{p_V} \right)$$

angle formed with center line

