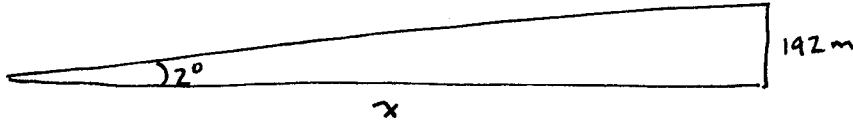


# Chapt 1

1.5 Diamond wt = 3106 Carats wt in lbs?

$$3106 \text{ Carats} \times \frac{0.2g}{\text{Carat}} \times \frac{2.205 \text{ lbs}}{1000g} = \underline{1.370 \text{ lbs}}$$

1.14

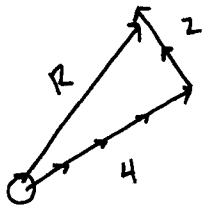


$$\tan 2^\circ = \frac{192m}{x}$$

$$x = \frac{192m}{\tan 2^\circ}$$

$$\underline{x = 5500m = 5.5 \text{ km}}$$

1.24



Side of square = 4.0 cm

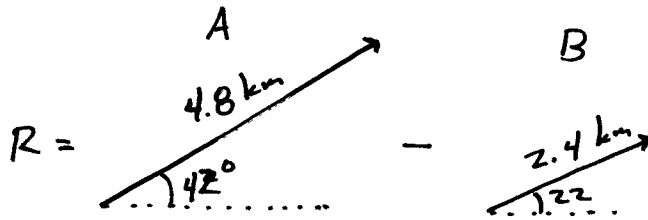
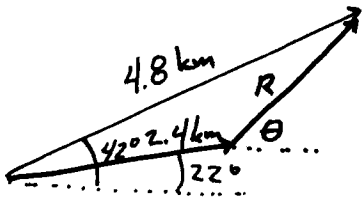
along diagonal  $\frac{?}{4} = 4\sqrt{2}$  cm

$$R^2 = a^2 + b^2$$

$$= (4(4\sqrt{2}))^2 + (2(4\sqrt{2}))^2$$

$$\underline{R = 25.3 \text{ cm}}$$

1.46



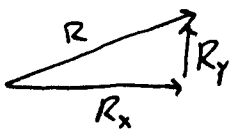
$$R_x = A_x (= 4.8 \cos 42) - B_x (= 2.4 \cos 22)$$

$$R_y = A_y (= 4.8 \sin 42) - B_y (= 2.4 \sin 22)$$

$$R_x = 1.35 \text{ km} \quad R_y = 2.31 \text{ km}$$

$$R = \sqrt{R_x^2 + R_y^2} \Rightarrow \underline{R = 2.68 \text{ km}}$$

$\theta$ ?



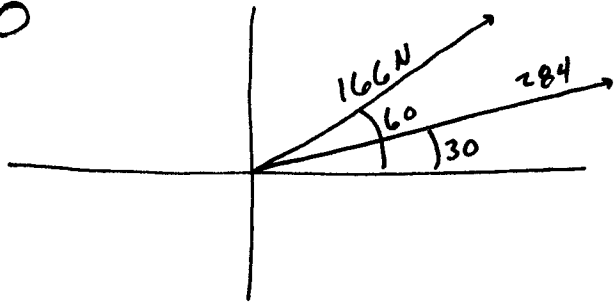
$$\tan \theta = \frac{R_y}{R_x}$$

$$\theta = \tan^{-1} \frac{R_y}{R_x}$$

$$\underline{\theta = 60^\circ \text{ N of E}}$$

Chapt 1 (pg 2)

1.50



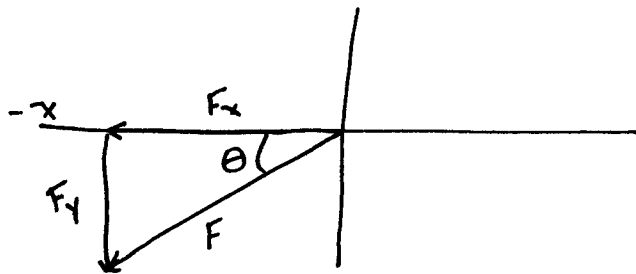
$$F + 166N @ 60^\circ + 284 @ 30^\circ = 0$$

$$F_x = -(F_{Ax} + F_{Bx})$$

$$F_y = -(F_{Ay} + F_{By})$$

$$F_x = -(166 \cos 60 + 284 \cos 30) = -329 \text{ N}$$

$$F_y = -(166 \sin 60 + 284 \sin 30) = -286 \text{ N}$$



$$F^2 = F_x^2 + F_y^2$$

$$F = \sqrt{(-329)^2 + (-286)^2}$$

$$\underline{F = 436 \text{ N}}$$

$$\theta? \quad \tan \theta = \frac{F_y}{F_x} \quad \theta = \tan^{-1} \frac{F_y}{F_x}$$

$$\underline{\theta = 41^\circ \text{ below } -x\text{-axis}}$$