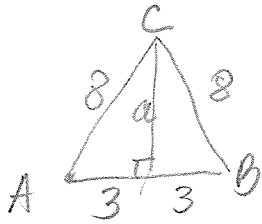


PRACTICE PROBLEMS

1. An isosceles triangle has sides 8, 8, 6.

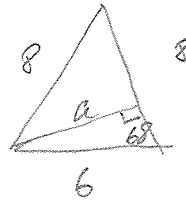
a) Find the lengths of its altitudes.



$$a^2 + 3^2 = 8^2$$

$$a^2 = 55$$

$$a \approx 7.4$$



$$\sin 68 = \frac{a}{6}$$

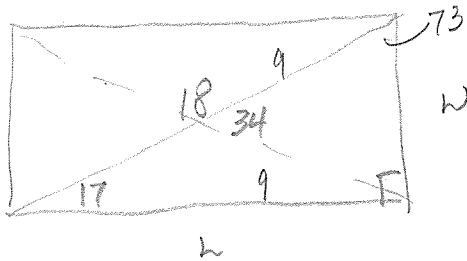
$$a \approx 5.6$$

for both altitudes

b) find $m\angle B$. $\cos B = \frac{3}{8}$

$$m\angle B \approx 68^\circ$$

2. The diagonals of a rectangle are 18 cm. and intersect in a 34° angle. Find the length and width of the rectangle.



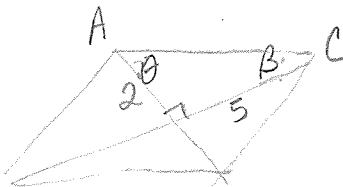
$$\cos 73 = \frac{w}{18}$$

$$w \approx 5.3 \text{ cm}$$

$$\sin 73 = \frac{l}{18}$$

$$l \approx 17.2 \text{ cm}$$

3. A rhombus has diagonals of 4 and 10. Find the measures of the angles of the rhombus.



$$\tan \theta = \frac{5}{2}$$

$$\theta \approx 68.2^\circ$$

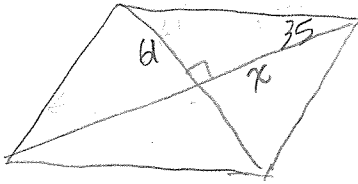
$$m\angle A = 136.4^\circ$$

$$\tan \beta = \frac{2}{5}$$

$$\beta = 21.8^\circ$$

$$m\angle C = 43.6^\circ$$

4. The shorter diagonal of a rhombus with a 70° angle is 122 cm. How long is the longer diagonal?



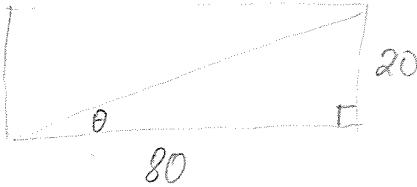
$$\tan 35 = \frac{61}{x}$$

$$x \approx 87.1170$$

$$\begin{aligned} \text{longer diag} &= 2x \\ &= 2(87.1170) \\ &\approx 174.23 \text{ cm} \end{aligned}$$

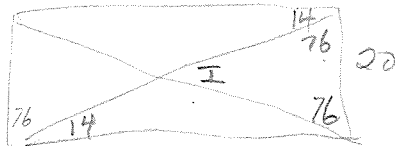
5. A rectangle is 80×20 cm. Find the measure of the acute angle formed at the intersection of the diagonals.

(I) Find $m\angle \theta$.



$$\tan \theta = \frac{20}{80} = \frac{1}{4}$$

$$m\angle \theta = 14^\circ$$



$$m\angle I = 28^\circ$$