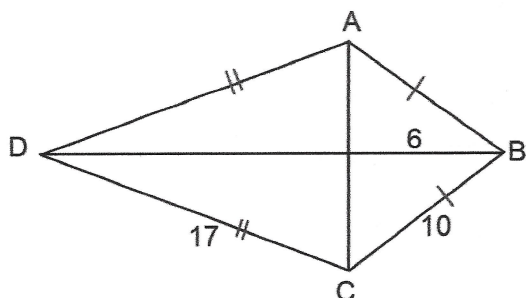
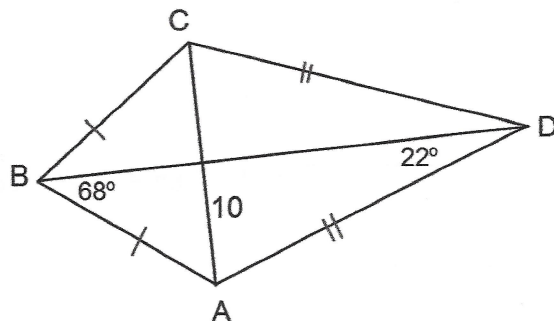


Find the area of each Kite. Round to the nearest hundredth unless noted otherwise.

1.

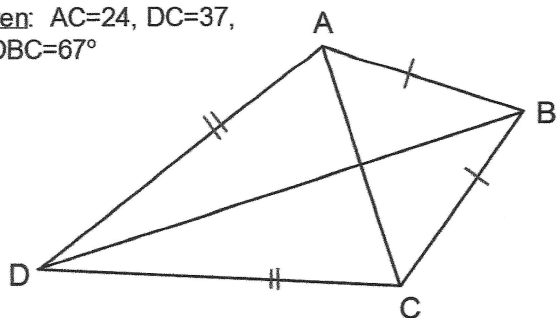


2.

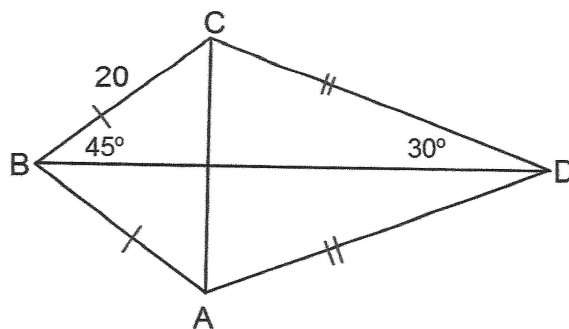


3.

Given: $AC=24$, $DC=37$,
 $\angle DBC=67^\circ$



4. Give the EXACT area.

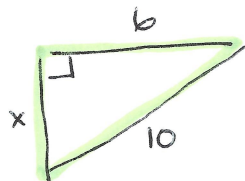
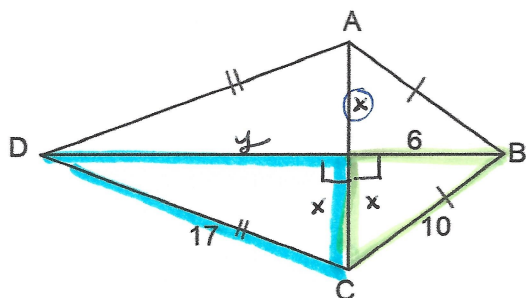


5. In Kite ABCD the coordinates of the vertices are: $A(-3,-2)$, $B(4,7)$, $C(12,3)$, and $D(8,-5)$

Find the area of each Kite. Round to the nearest hundredth unless noted otherwise.

ANSWERS

1.



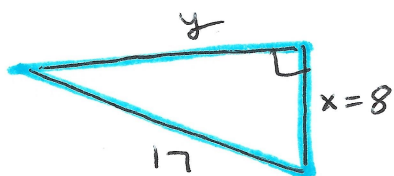
$$x^2 + 6^2 = 10^2$$

$$x^2 = 10^2 - 6^2$$

$$x = \sqrt{10^2 - 6^2}$$

$$x = 8$$

$$\text{Vertical diagonal} = 2 \cdot x = 2(8) = 16$$



$$y^2 + 8^2 = 17^2$$

$$y^2 = 17^2 - 8^2$$

$$y = \sqrt{17^2 - 8^2}$$

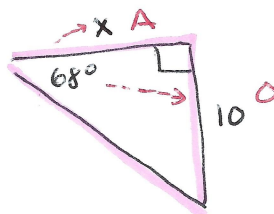
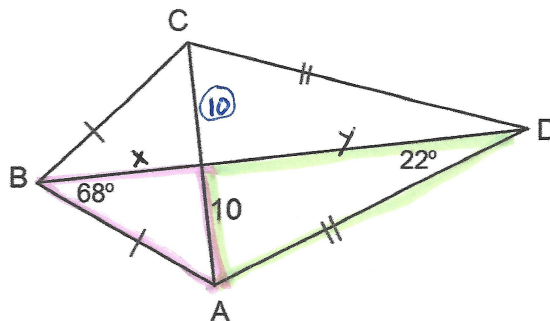
$$y = 15$$

$$\text{Horizontal diagonal} = 15 + 6 = 21$$

$$A = \frac{1}{2}(16)(21)$$

$$A = 168$$

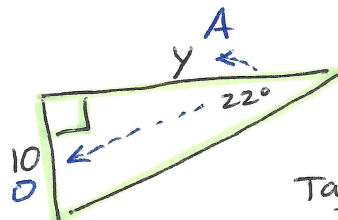
2.



SOHCAHTOA

$$\tan 68^\circ = \frac{10}{x}$$

$$x = 4.04$$



SOHCAHTOA

$$\tan 22^\circ = \frac{10}{y}$$

$$y = 24.75$$

$$\text{VERTICAL DIAG: } 2(10) = 20$$

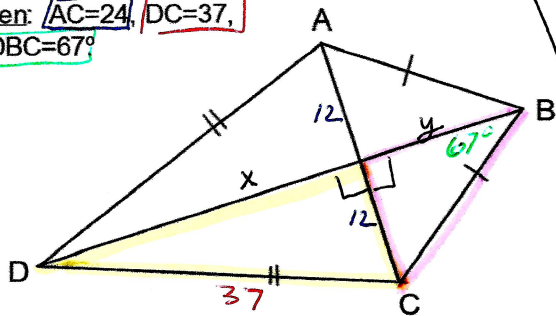
$$\text{Horiz. DIAG: } x + y = 4.04 + 24.75 = 28.79$$

$$A = \frac{1}{2}(20)(28.79)$$

$$A = 287.90$$

3.

Given: $AC=24$, $DC=37$,
 $\angle DBC=67^\circ$



$$x^2 + 12^2 = 37^2$$

$$\sqrt{x^2} = \sqrt{37^2 - 12^2}$$

$$x = 35$$

SOH CAH TOA

$$\tan 67^\circ = \frac{12}{y}$$

$$y = 5.09$$

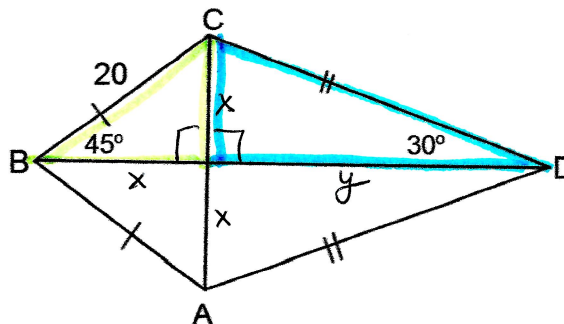
$$\text{DIAG } AC = 24$$

$$\text{DIAG } BD = 35 + 5.09 = 40.09$$

$$A = \frac{1}{2}(24)(40.09)$$

$$A = 481.08$$

4. Give the EXACT area.



45-45-90 Δ

$$\text{leg} = \text{hyp}/\sqrt{2}$$

$$x = \frac{20}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \frac{20\sqrt{2}}{2} = 10\sqrt{2}$$

$$\begin{aligned} \text{DIAG } AC &= 2x \\ &= 2(10\sqrt{2}) \\ &= 20\sqrt{2} \end{aligned}$$

30-60-90 Δ

$$LL = SL \cdot \sqrt{3}$$

$$y = 10\sqrt{2} \cdot \sqrt{3}$$

$$y = 10\sqrt{6}$$

$$\begin{aligned} \text{DIAG } BD &= x + y \\ &= 10\sqrt{2} + 10\sqrt{6} \end{aligned}$$

$$\begin{aligned} A &= \frac{1}{2}(20\sqrt{2})(10\sqrt{2} + 10\sqrt{6}) \\ &= 10\sqrt{2}(10\sqrt{2} + 10\sqrt{6}) \\ &= 10\sqrt{2} \cdot 10\sqrt{2} + 10\sqrt{2} \cdot 10\sqrt{6} \\ &= 100 \cdot 2 + 100(\sqrt{12}) \rightarrow \sqrt{12} = 2\sqrt{3} \\ &= 200 + 200\sqrt{3} \end{aligned}$$

5. In Kite ABCD the coordinates of the vertices are: $A(-3, -2)$, $B(4, 7)$, $C(12, 3)$, and $D(8, -5)$ DIAGONALS ARE $\overline{AC}$ & $\overline{BD}$

$$\text{Length of } \overline{AC}: AC = \sqrt{(12 - (-3))^2 + (3 - (-2))^2} = \sqrt{15^2 + 5^2} = \sqrt{250}$$

$$\text{Length of } \overline{BD}: BD = \sqrt{(8 - 4)^2 + (-5 - 7)^2} = \sqrt{4^2 + 12^2} = \sqrt{160}$$

Area of Kite is

$$A = \frac{1}{2}(\sqrt{250})(\sqrt{160})$$

$$A = 100$$