Bell Work - IB Math Studies 2

Assignment Due today:

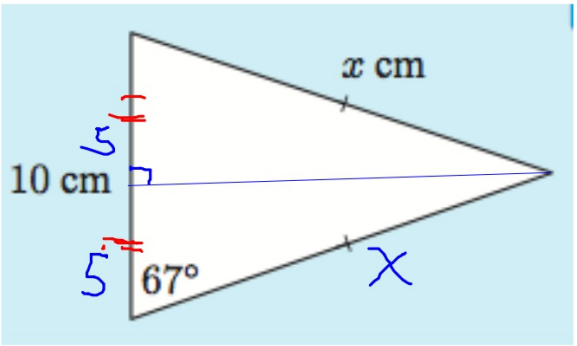
15 B.1 #4
15 B.2 #2 a-d, #4
15 B.3 #1 a-d, #3, #4

C USING TRIGONOMETRY IN GEOMETRIC FIGURES

Often, figures that are not right triangles can be broken into right triangles to find unknown measures in the figure.

ISOSCELES TRIANGLES

Find the unknowns in the following diagrams:



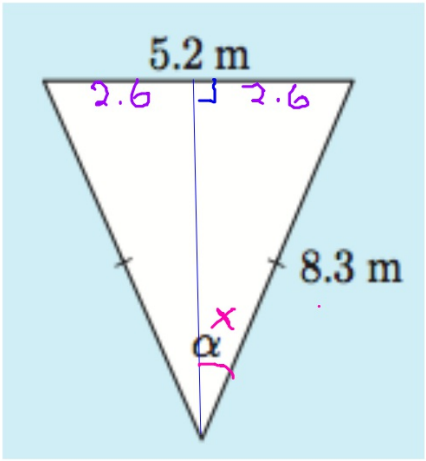
$\cos 67° = \frac{5}{x}$

$x = \frac{5}{\cos 67}$

$x = 12.8 \text{ cm}$

ISOSCELES TRIANGLES

Find the unknowns in the following diagrams:



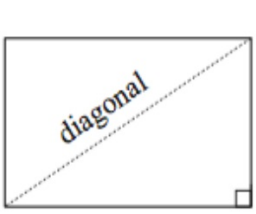
$$\sin x = \frac{2.6}{8.3}$$

$$\sin^{-1}\left(\frac{2.6}{8.3}\right) = x$$

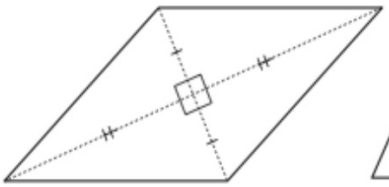
$$x = 18.3(2)$$

$$\alpha = 36.6^\circ$$

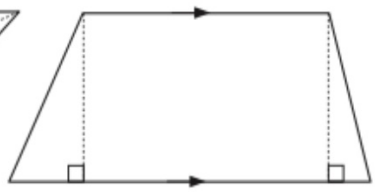
SPECIAL QUADRILATERALS



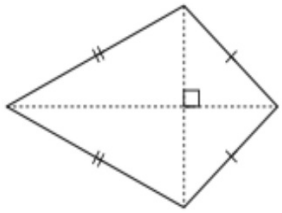
rectangle



rhombus



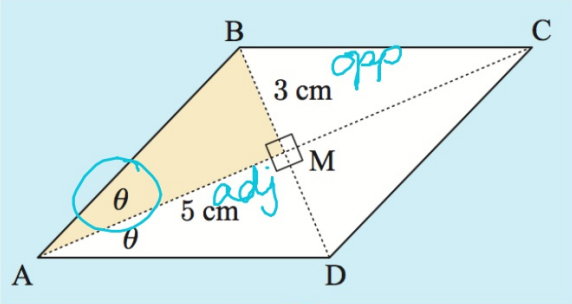
trapezium or trapezoid



kite

You can make right triangles in many shapes.

A rhombus has diagonals of length 10 cm and 6 cm. Find the smaller angle of the rhombus.



opp

adj

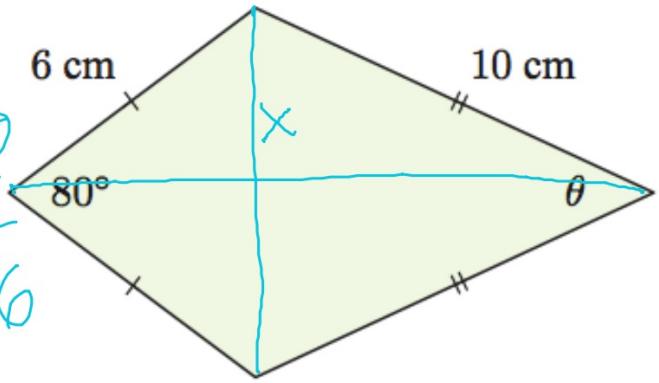
$\tan x = \frac{3}{5}$

$\tan^{-1}\left(\frac{3}{5}\right) = 30.964$

$(30.964)(2) = 61.9$

61.8°

Find θ.



$\sin 40 = \frac{x}{6}$

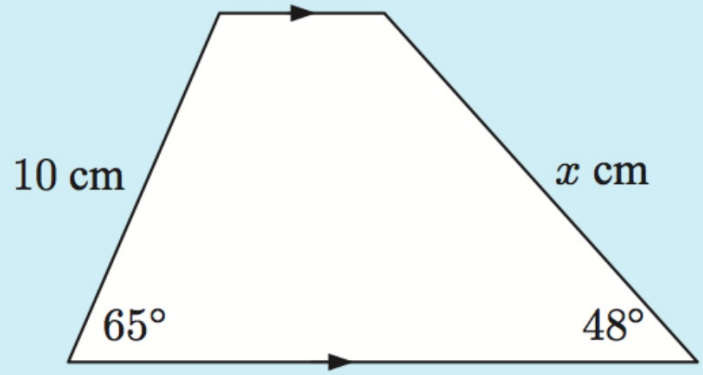
$6 \sin 40 = x = 3.86$

$\sin \frac{\theta}{2} = \frac{3.86}{10}$

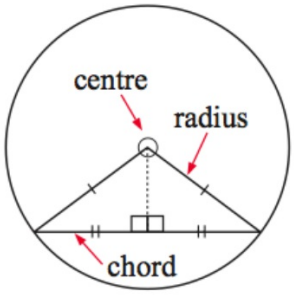
$\sin^{-1} \frac{3.86}{10} = \frac{\theta}{2}$

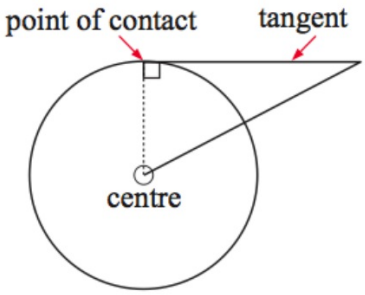
$\frac{\theta}{2} = 22.71 \quad \theta = 45.4^\circ$

Find x given:

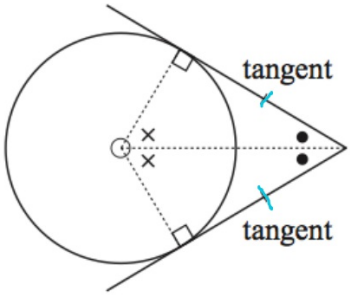


Right triangles in chords and tangents:



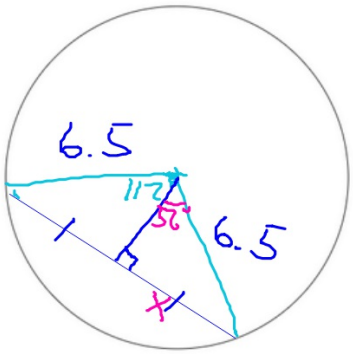


A tangent is perpendicular to the radius/diameter at the point of contact



A tangent is perpendicular to the radius/diameter at the point of contact

A chord of a circle subtends an angle of 112° at its centre. Find the length of the chord if the radius of the circle is 6.5 cm.



$$\sin 56 = \frac{x}{6.5}$$

$$6.5 \cdot \sin 56 = x$$

Assignment:

15 C.1 # 2, 5, 7, 8, 9

C.2 # 4, 5