BECA / Dr. Huson / Geometry 02-Trig+3D Name:
pset ID: 1

2-2CW-Law-of-sines-cosines

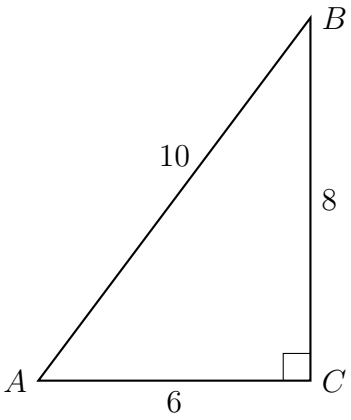
1. Express each value as a decimal, first writing the whole calculator display, and then the 3 sig-fig approximation. [4 marks]

   (a) $\dfrac{2\pi}{3}$ (b) $\dfrac{\sqrt{3}}{2}$

2. Express each value as a decimal, rounding to 3 sig-figs if necessary. [3 marks]

   (a) 4.561×10^4 (b) 1.90×10^{-3}

3. $\triangle ABC$ is shown with $m\angle C = 90°$ and the lengths of the triangle's sides are $BC = 8$, $AC = 6$, and $AB = 10$.

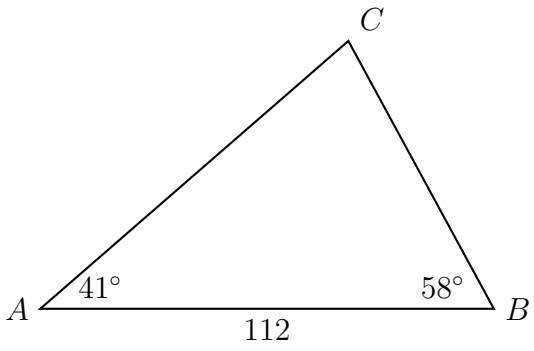


   (a) Write down the value of $\sin A$. [1 mark]

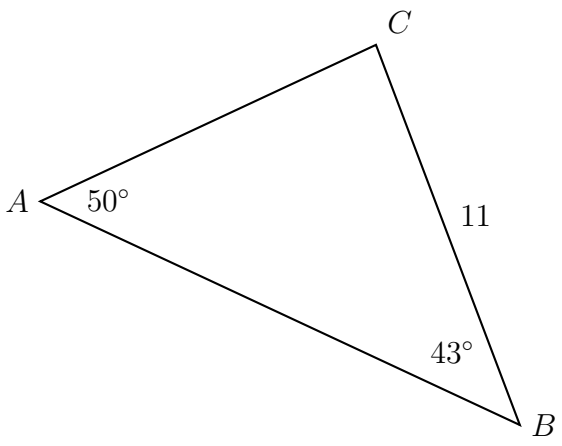
   (b) Find the measure of $\angle A$. [2 marks]

4. In right triangle ABC, hypotenuse $\overline{AB}$ has a length of 26 cm, and side $\overline{BC}$ has a length of 17.6 cm. What is the measure of angle B?

5. Solve the given triangle (determine the values of all lengths and angles)



6. The following diagram shows triangle ABC (not drawn to scale).

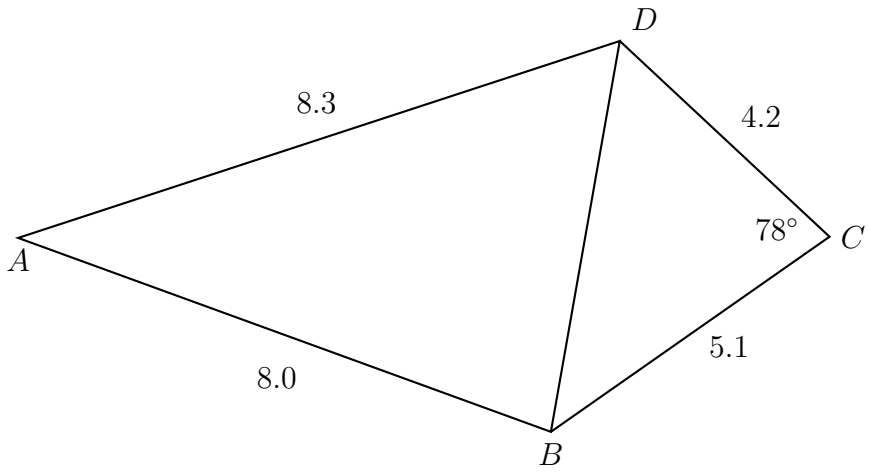


$BC = 11$, $C\hat{A}B = 50°$, and $A\hat{B}C = 43°$

(a) Find AC. [3 marks]

(b) Find the area of triangle ABC. [3 marks]

7. The following diagram shows quadrilateral $ABCD$ (not drawn to scale).



$AB = 8.0$, $BC = 5.1$, $CD = 4.2$, $AD = 8.3$, and $B\hat{C}D = 78°$

(a) Find BD. [3 marks]

(b) Find $A\hat{B}D$. [3 marks]

8. BMI is a measure of a healthy personal weight,

$$BMI = \frac{w}{h^2}$$

where
w is a person's weight in kilograms, and
h is height in meters

(a) Given a height of 160 cm and weight of 54 kg, find the BMI [3 marks]

(b) These measurements are not exact. Assuming the height is between 159-161 cm and weight 53-55 kg, find the bounds of the BMI. [4 marks]

9. Triangle ABC has an area of 25, with $AB = 7$ and $AC = 8$.

   (a) Find the two possible measures for $\hat{A}$. [4 marks]

   (b) Given that $\hat{A}$ is obtuse, find BC. [3 marks]

10. Find the slant height of a pyramid with square base 4 meters on a side and height of 4 m. [3 marks]