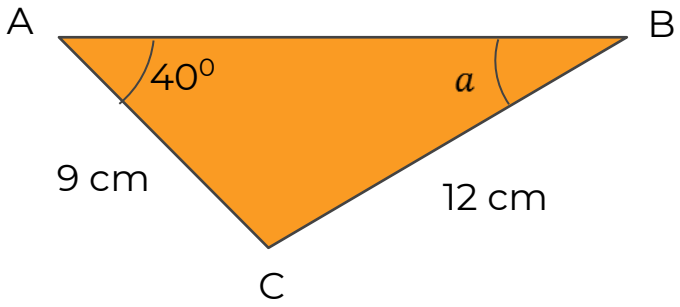
Use the sine rule to find a missing angle

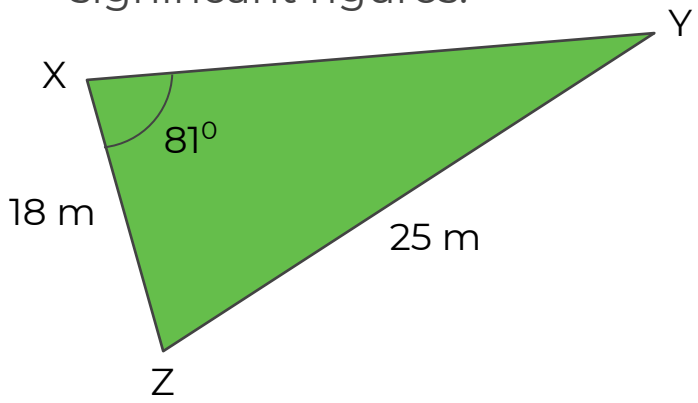
Mr Clasper
Maths

Use the sine rule to find a missing angle

1. Find the size of angle a. Round your answer to 1 decimal place.



2. Find the size of the angle XYZ. Round your answer to three significant figures.



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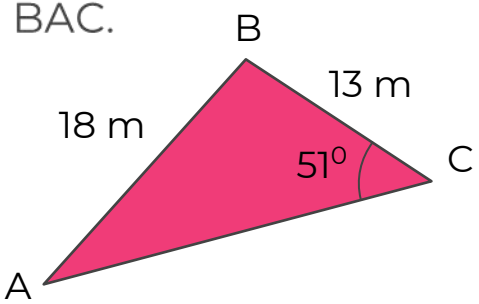
3. Baz is trying work out the size of the angle BAC.

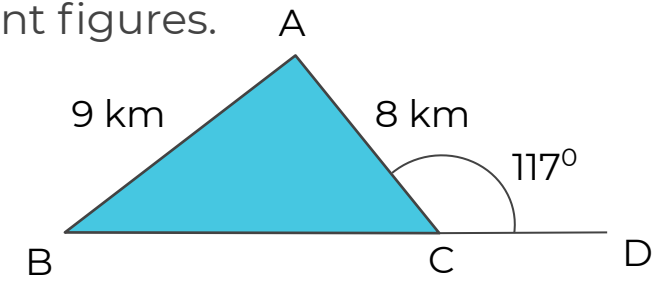


Here is some of his working out.

$$\text{Sin(BAC)} = 13 \times \frac{18}{\text{sin51}}$$

What mistake has he made?

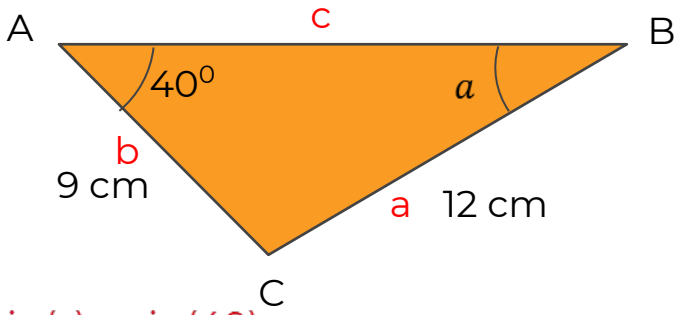
4. Given that BCD is a straight line, calculate the size of angle ABC. Round your answer to three significant figures.



Answers

Use the sine rule to find a missing angle

1. Find the size of angle a. Round your answer to 1 decimal place.

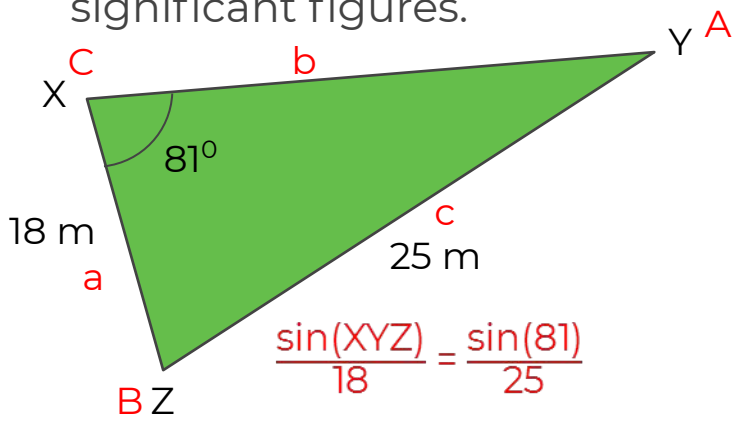


$$\frac{\sin(a)}{9} = \frac{\sin(40)}{12}$$

$$\sin(a) = 9 \times \frac{\sin(40)}{12} = 0.482.....$$

$$\text{Sin}^{-1}(0.482.....) = 28.82203..... \approx 28.8°$$

2. Find the size of the angle XYZ. Round your answer to three significant figures.



$$\frac{\sin(XYZ)}{18} = \frac{\sin(81)}{25}$$

$$\sin(XYZ) = 18 \times \frac{\sin(81)}{25} = 0.711.....$$

$$\text{Sin}^{-1}(0.482.....) = 45.3273..... \approx 45.3°$$

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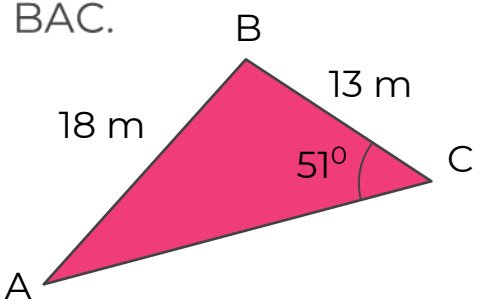
3. Baz is trying work out the size of the angle BAC.



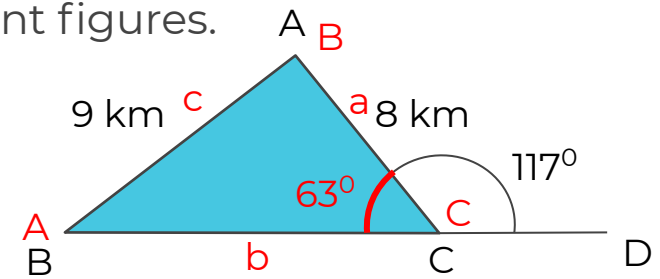
Here is some of his working out.

$$\text{Sin(BAC)} = 13 \times \frac{18}{\sin 51}$$

What mistake has he made?

Should be $\sin(\text{BAC}) = 13 \times \frac{\sin(51)}{18}$

4. Given that BCD is a straight line, calculate the size of angle ABC. Round your answer to three significant figures.



$$\frac{\sin(\text{ABC})}{8} = \frac{\sin(63)}{9}$$

$$\sin(\text{ABC}) = 8 \times \frac{\sin(63)}{9} = 0.792.....$$

$$\text{Sin}^{-1}(0.482.....) = 52.3733..... \approx 52.4°$$