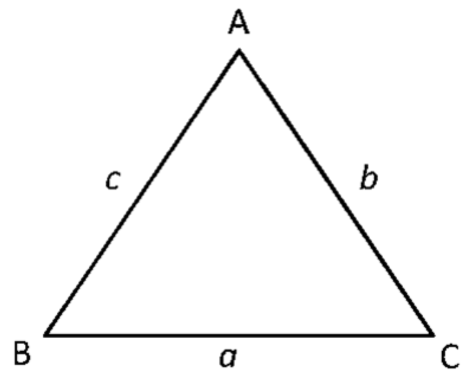
Proving the Law of Sines Name: ____________________ Block: __



Ambiguous Case

- Occurs when you are given two consecutive sides and an angle. (SSA)
- 3 cases: no triangles, one triangle, two triangles.

No triangles.

- When the given angle is obtuse the side opposite that angle must be the largest side.
- When the given angle is acute, the side opposite that angle must be greater than or equal to the altitude.
- Domain error in the calculator

1. $a = 19, b = 17, B = 93^o$

2. $A = 57^o, a = 11, b = 19$

One triangle.

- When the given angle is obtuse and the side opposite that angle is the longest side.
- When the given angle is acute and the side opposite that angle is equal to the length of the altitude. (right triangle)
- When the side opposite of the acute angle is longer than the altitude.

3. $a = 19, b = 17, A = 93^o$

4. $A = 30^o, a = 13, c = 26$

Two Triangles

- When the given angle is acute the side opposite that angle is less than the other given side.

5. $a = 26, b = 29, A = 58^o$

6. $C = 71^o, c = 24, a = 25$

Practice

1. $A = 30^o, a = 12, B = 45^o$

2. $A = 36^o, a = 10, b = 4$

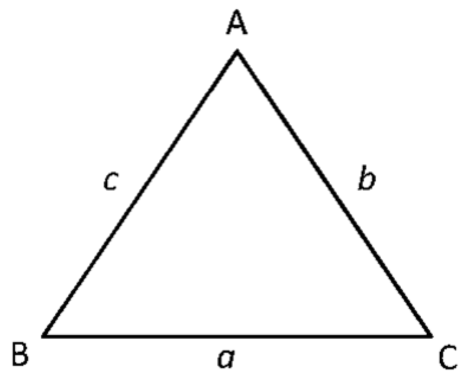
3. $A = 58^o, a = 4.5, b = 12.8$

4. $A = 94^o, a = 14.6, b = 14.6$

5. $B = 36^o, b = 19, c = 30.$

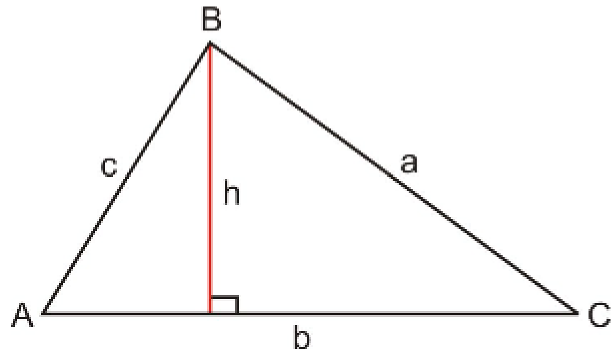
6. $A = 107.2^o, a = 17.2, c = 12.2$

Proving the Law of Cosines



Area of a Triangle

$$A = \frac{1}{2}bh, where\ b\ is\ the\ base\ and\ h\ is\ the\ hegiht$$

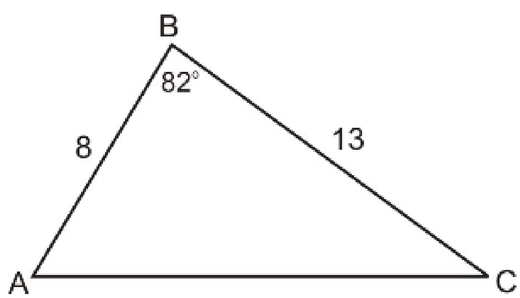


Use trig ratios.

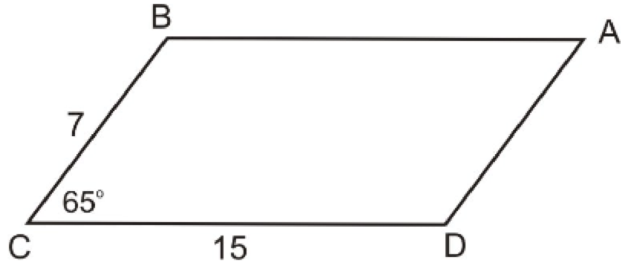
Solve for h.

Substitute for h.

Ex.1 Find the area and perimeter of ΔABC.



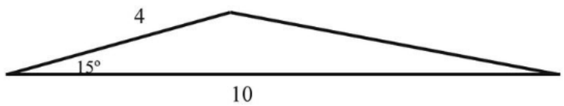
Ex.2 Find the area of parallelogram $ABCD$.



Practice Finding Area of Triangles Name: ______________________ Block: __

Find the area of the triangles.

1.



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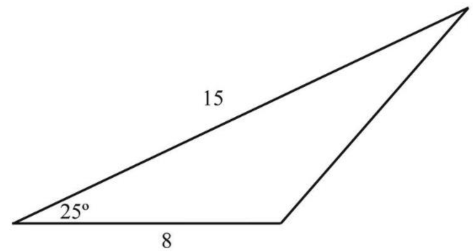

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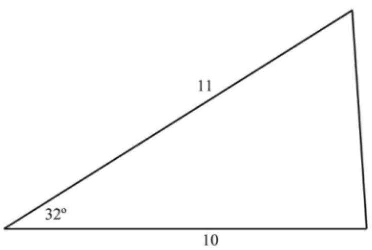

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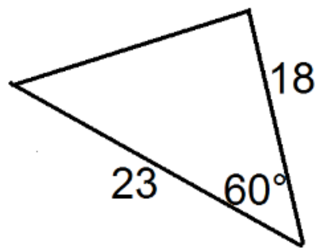

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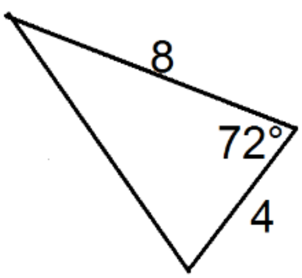

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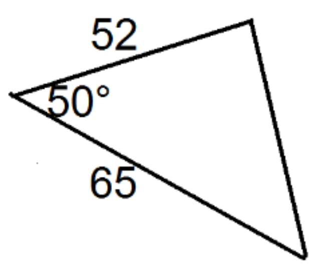

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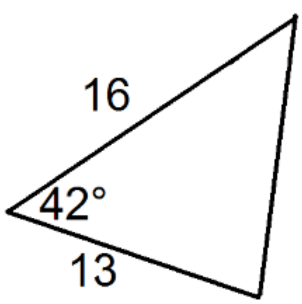

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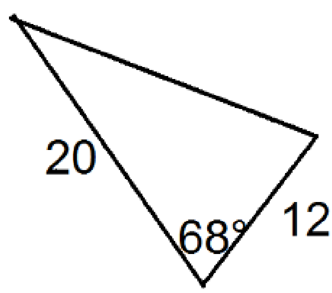
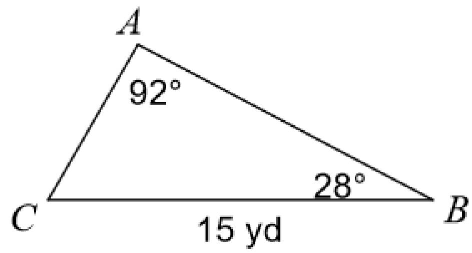
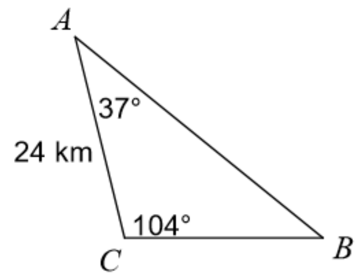


Law of Sines and Cosines Review. Name: ____________________ Block: ___

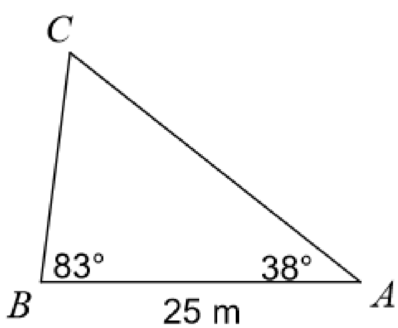
1. Find b.



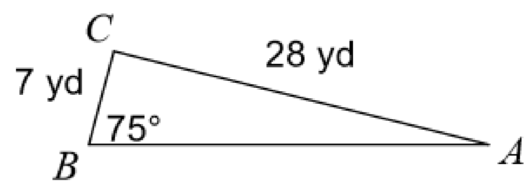
2. Find a.



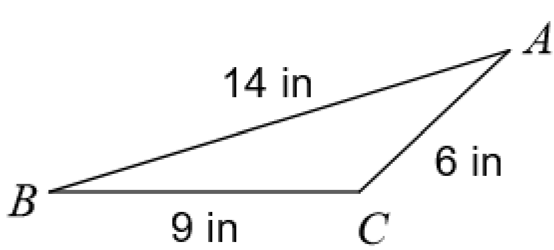
3. Find b.



4. Find $\angle A$.



5. Find $\angle C$.



6. Find $\angle B$