

Name: _____ Date : _____

IM 2 UNIT TEST V2 - Trigonometry

Teacher: Mr. Santowski and Ms. Aschenbrenner

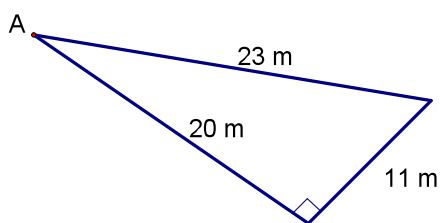
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1. Given the following right triangle, state the value of the trigonometric RATIOS (sine ratio, cosine ratio, tangent ratio) for angle A. Leave all answers in fraction form. **(3M)**

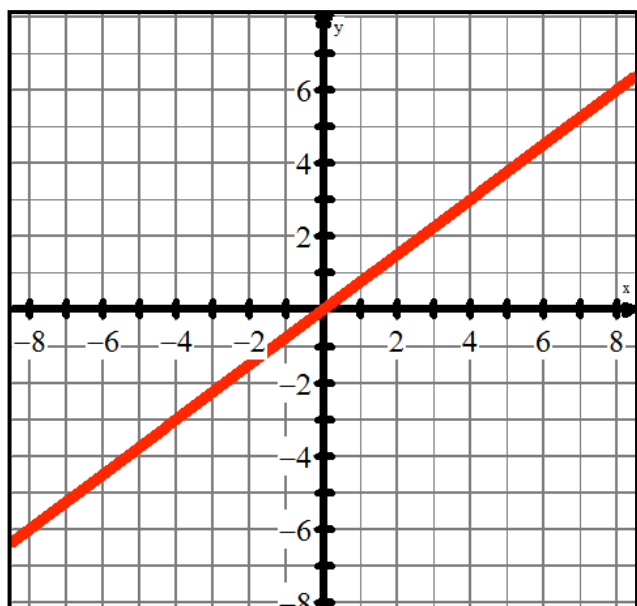
(a) $\sin A =$ _____.

(b) $\cos A =$ _____.

(c) $\tan A =$ _____.



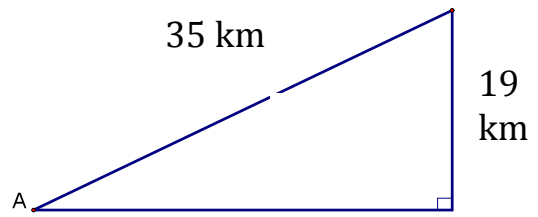
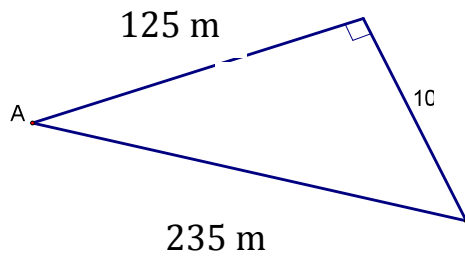
2. A diagram showing a linear relation is graphed for you. Determine:



- (a) the slope of the line **(2M)**

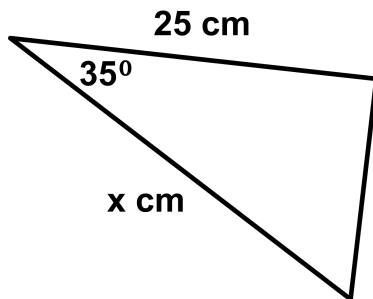
- (b) the angle the line makes with the x-axis. **(2M)**

3. For the given triangles, solve for angle A. Round your final answer to ONE decimal place. **(6M)**

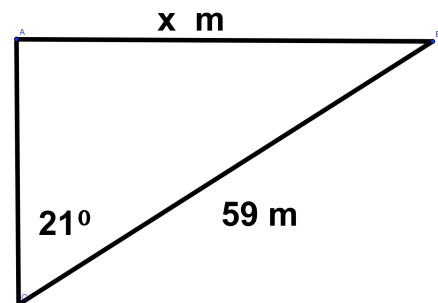


4. For the given triangles, solve for the unknown side (labeled as x on the diagrams). Round your final answer to ONE decimal place. **(6M)**

a.



b.



5. A 50-foot flagpole casts a 35-foot shadow. Start by drawing a diagram illustrating this information

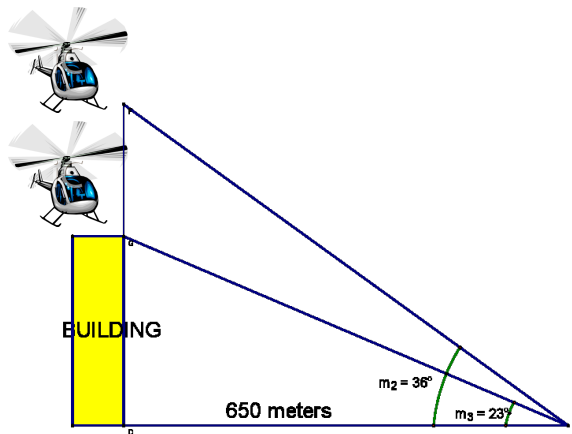
(6M)

a. Determine the angle of elevation of the sun, to the nearest degree.

b. Find the length of a shadow cast by a nearby building 300 feet tall using your answer from Q5(a). Round final answer to the nearest foot.

6. Nuria is flying a kite on the beach. She holds the end of the string 1.75 meters above ground level and determines the angle of elevation of the kite to be 62° . If the string is 32 meters long, how high is the kite above the ground to the *nearest tenth of a meter*? **(4M)**

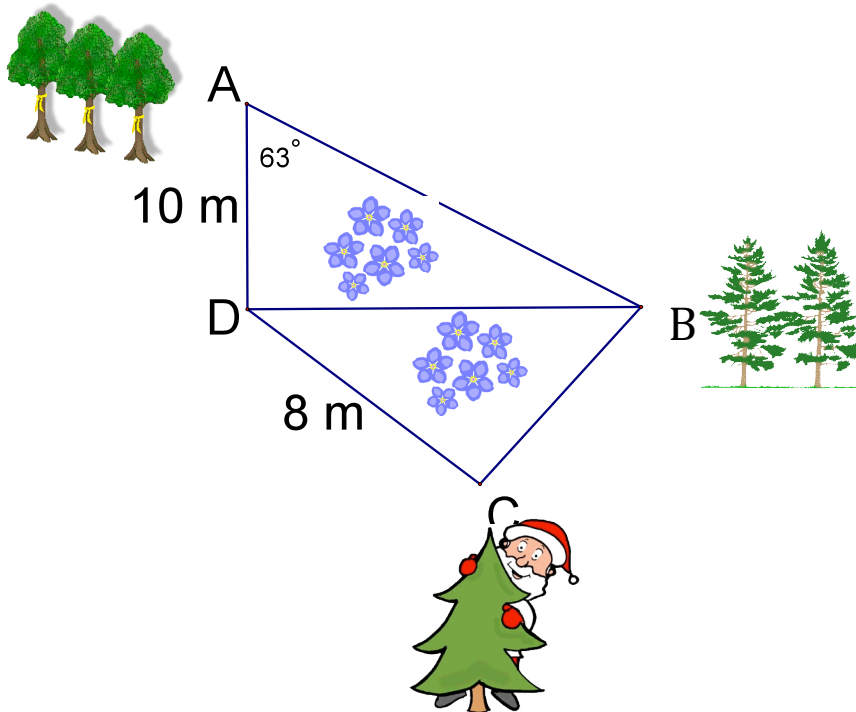
7. From a point 650 meters from the base of a building, Chris observes a helicopter at an angle of elevation of 23° . The helicopter (piloted by Amin of course) rises directly upward and the angle of elevation is now 36° . **(6M)**
- Find the height of the building, to the *nearest meter*.
 - Find the height to the helicopter at its highest point, to the *nearest meter*.
 - Using your answers from (a) and (b), find the height risen by the helicopter to the *nearest meter*.



8. Aubry is an avid gardener. She has a garden for her flowers which is shaped like 2 triangles as shown below. NOTE: that $\angle ADB$ and $\angle BCD$ are right angles. All external sides represent the fence that she has placed around the garden. **NOTE: Round all final answers to one decimal place. NOTE #2: The area of a triangle is $A = \frac{1}{2}bh$**

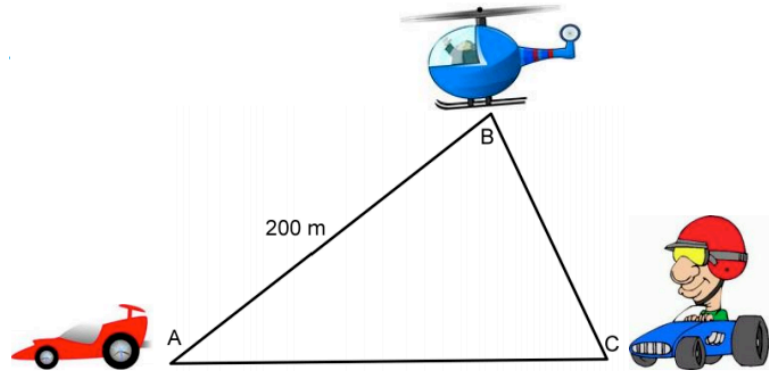
For her garden, determine the following:

- The measure of the fence between the corners at A and B. **(2M)**
- The distance between the corners at D and B. **(2M)**
- Then determine the length of BC. **(2M)**
- The total perimeter of fencing AROUND the OUTSIDE of the garden. **(2M)**
- The total measure of $\angle ABC$. **(3M)**
- What is the area covered by the garden? **(2M)**



9. Hassan is flying in a helicopter above a road and between two racing cars driving on this road. The angle of depression to the leading car is 12° and the angle of depression to the trailing car is 30° . The direct distance from the helicopter to the leading car is 200 m. (See the partial diagram included). **(7M)**

- a. Determine the altitude of the helicopter.
- b. Determine the distance between the two race cars



BONUS: Solve for x (side AD)

