MFM 2P Mrs. Roen Name: _____

Course: MFM2P Gr. 10 Applied **Lesson: 2 - 3**

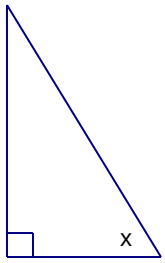
Unit: Right Triangle Trigonometry **Topic: Ratio and Proportion in Right Triangles**

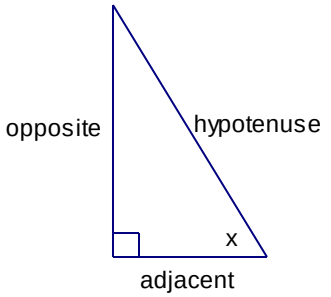
- ***homework check:*** **Lesson 2 - 2**

- ***note:*** **Ratio and Proportion in Right Triangles**

The angle in a right triangle designates the name of the sides. The hypotenuse is the only side that does not change even if the angle changes! The word *adjacent means beside and is located beside the angle*. The name of the *opposite side shows its location opposite the angle*. For example, for each triangle, label the hypotenuse, opposite and adjacent sides.

a)





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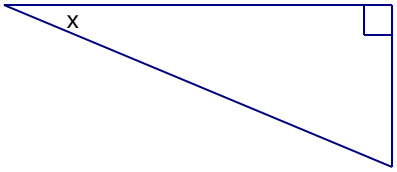

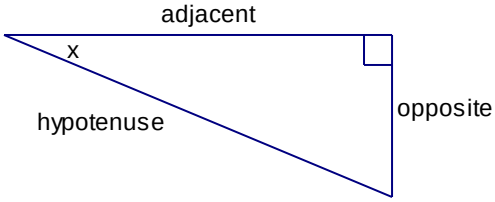

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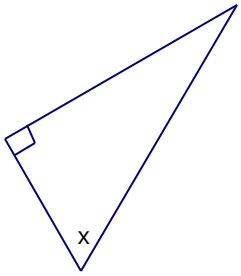

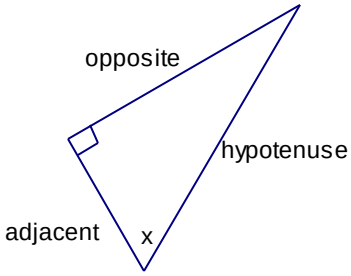

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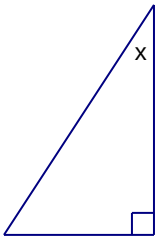
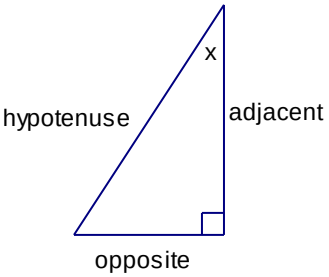
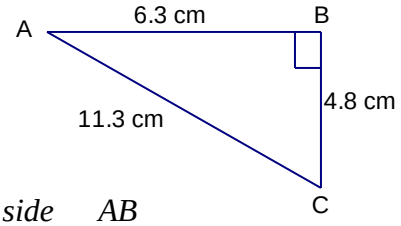




Writing the ratios of sides in a right angled triangle requires knowing not only the names of the sides, but also how to name the sides and angles given a specific triangle. For example, given triangle ABC , write the ratio of the opposite side to the adjacent side with respect to angle C.



$$\frac{opposite\ side}{adjacent\ side} = \frac{AB}{BC}$$
$$= \frac{6.3}{4.8}$$
$$= 1.3125$$

Note: Use four decimals unless told otherwise! This will be helpful when we move onto trigonometry!

- ***homework assignment:*** **<u>Lesson 2 – 3</u>**

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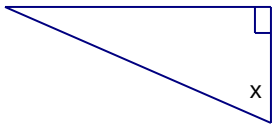
Lesson 2 – 3: trig ratios

1. Label the hypotenuse (H), adjacent (A), and opposite (O) sides in each.

a)



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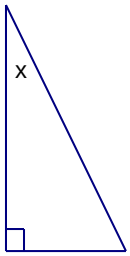

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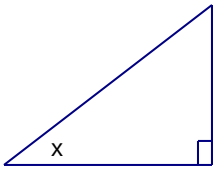
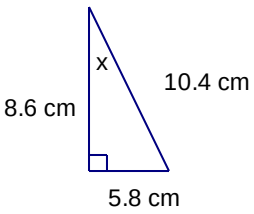


2. For each of the following triangles, write the ratios comparing
i) adjacent side to hypotenuse
ii) opposite side to hypotenuse
iii) opposite side to adjacent side
Express each ratio as a decimal to the nearest 4 places.

a)



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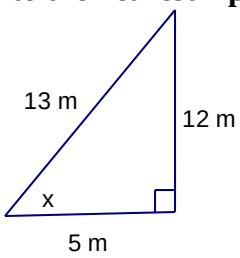

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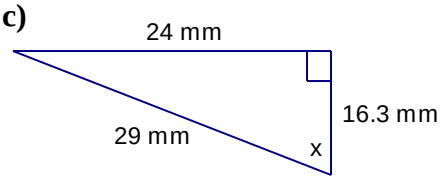

$\frac{adj}{hyp} =$ $\frac{adj}{hyp} =$ $\frac{adj}{hyp} =$

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3. Draw the triangle XYZ with right angle at Y and side lengths XY = 3 m, YZ = 4 m, and XZ = 5m. Write the ratio comparing the length of the adjacent side to the length of the hypotenuse with respect to angle X.

4. Draw the triangle PQR with right angle at P and side lengths PQ = 6.9 cm, QR = 8.3 cm, and PR = 4.6 cm. Write the ratio comparing the length of the opposite side to the length of the hypotenuse with respect to angle R.

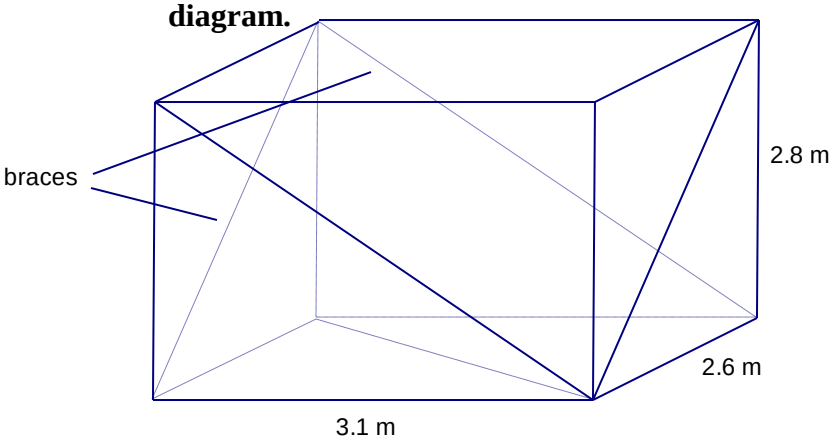
5. In a right triangle, the side lengths from the right angle are called "*legs*".
i) Draw a right triangle with legs of 4.2 mm and 7.6 mm. Call the angle opposite 7.6 mm angle x.

ii) Calculate the length of the hypotenuse.

iii) Write the ratio of adjacent side to hypotenuse.

iv) Write the ratio of the opposite side to the hypotenuse.

6. A shipping container is built using steel bars to increase strength as shown in the diagram.



i) Calculate the length of the brace for the base of the container.

ii) Write the ratio for the horizontal measure to the brace measure.