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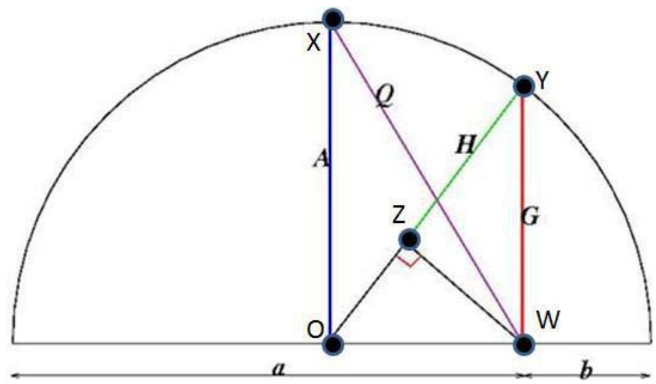
Diagram:



ii)

For A,
The diameter is $a + b$, then the radius is $\frac{a+b}{2}$. Based from the diagram, length A is also the radius of the circle. Hence, $\boldsymbol{A} = \frac{\boldsymbol{a+b}}{\boldsymbol{2}}$

For G,
Using ΔOWY, OY = radius = $\frac{a+b}{2}$ and OW = $\frac{a+b}{2} - b = \frac{a-b}{2}$
Applying Pythagorean theorem,

$$YW = G = \sqrt{(OY)^2 + (OW)^2}$$

$$G = \sqrt{(\frac{a+b}{2})^2 - (\frac{a-b}{2})^2}$$

By simplifying, we have: $\boldsymbol{G} = \sqrt{\boldsymbol{ab}}$

For H,
Since $\Delta OWY \sim \Delta WZY$
We have:

$$\frac{OY}{YW} = \frac{WY}{YZ}$$

$$\frac{radius}{G} = \frac{G}{H}$$

$$\frac{(\frac{a+b}{2})}{\sqrt{ab}} = \frac{\sqrt{ab}}{H} \longrightarrow H = \frac{2ab}{a+b} = \frac{2}{\frac{a+b}{ab}}$$

$$\boldsymbol{H} = \frac{\boldsymbol{2}}{\frac{\boldsymbol{1}}{\boldsymbol{a}} + \frac{\boldsymbol{1}}{\boldsymbol{b}}}$$

On the diagram, lengths A and G are both half of two parallel chords of the circle. Due to the fact that the diameter is the longest chord of the circle, it follows that $2A > 2G$. Therefore, $A > G$.
Taking ΔWZY, we can conclude that $G > H$ since G is the length of the hypotenuse.
To sum up the inequality, we have: $\boldsymbol{A > G > H}$

iii) Considering ΔXOW,

$$(XW)^2 = (XO)^2 + (OW)^2$$

$$Q^2 = A^2 + (\frac{a-b}{2})^2$$

$$Q = \sqrt{(\frac{a+b}{2})^2 + (\frac{a-b}{2})^2}$$

By making the expression simpler, we would arrive to $\boldsymbol{Q = \sqrt{\frac{a^2+b^2}{2}}}$