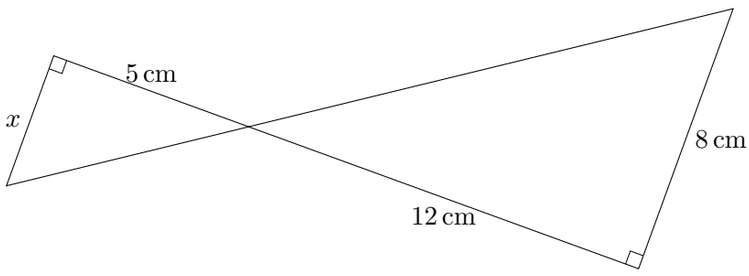
Math 123-01
Summer 2025
Dr. Lily Yen

Quiz Three

Show all your work

Name: _____
Number: _____
Signature: _____
Score: ___/10

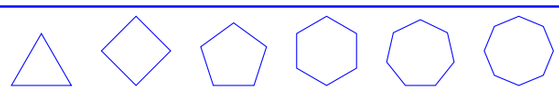
Problem 1: Find $x =$ $\boxed{3.3\,\text{cm}}$. Name the triangles, like ABC and CDE and provide reasons for your claim.



The two inner angles are vertically opposite so equal. Since each triangle has a right angle, the third angles have to be equal, too. Hence the triangles are similar and $\frac{x}{5} = \frac{8}{12}$, so $x = 5 \times \frac{8}{12} \approx 3.3$.

Score: /3

Problem 2: Set up a table for convex polygons' angle sums beginning with a triangle, followed by a quadrilateral, a pentagon, and so on. From your table, derive a formula for the measure of an interior angle in a regular n-sided polygon.

Polygon:							n-gon
Angle sum:	180	360	540	720	900	1080	$\ldots$ $180(n-2)$

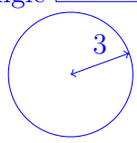
So an interior angle has $180(n-2)/n$ degrees.

Score: /3

Problem 3: Draw the following two shapes: A 4×3 rectangle and a circle of radius 3. Which of the two cover more area? Does the one with a larger area have a larger perimeter? Show your work to support your claim.

The rectangle 

has area $4 \times 3 = 12$ and perimeter $2(4+3) = 14$.

The circle 

has area $\pi 3^2 = 9\pi \approx 28.27$ and perimeter $2\pi 3 = 6\pi \approx 18.85$.
The circle has by far the largest area and the largest perimeter.

Score: /4