Math 123-01
Summer 2025
Dr. Lily Yen

Quiz 3

Show all your work

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

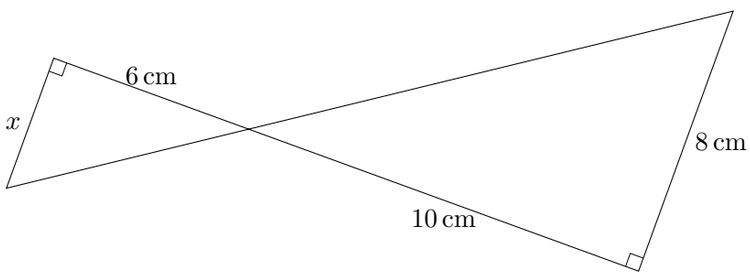
Problem 1: Set up a table for convex polygons' angle sums beginning with a triangle, followed by a quadrilateral, a pentagon, and so on. From your table, derive a formula for the measure of an interior angle in a regular n-sided polygon.

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

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

Score: /3

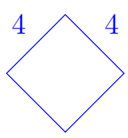
Problem 2: Find $x =$ 4.8 cm. Name the triangles, like ABC and CDE and provide reasons for your claim.



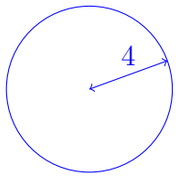
The two inner angles are vertically opposite so equal. Since each triangle has a right angle, the third angles have to be equal, too. Hence the triangles are similar and $\frac{x}{6} = \frac{8}{10}$, so $x = 6 \times \frac{8}{10} = 4.8$.

Score: /3

Problem 3: Draw the following two shapes: A square of side length 4 and a circle of radius 4. 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 square 

has area $4^2 = 16$ and perimeter $4 \times 4 = 16$.

The circle 

has area $\pi 4^2 = 16\pi \approx 50.27$ and perimeter $2\pi 4 = 8\pi \approx 25.13$.
The circle has by far the largest area and the largest perimeter.

Score: /4