

Quiz 9 Practice: Circles

MATH 130 · Practice for the take-home Quiz 9, due at the start of class
Wednesday, October 28

Name _____

Practice only: this is not the quiz. Print Quiz 9 itself from the Canvas announcement. Work each model first, then the "your turn" problems. Keep full calculator values until the last step, and round only the final answer as asked.

1 · Degrees to radians round to three decimal places

radians = degrees $\times \pi/180$

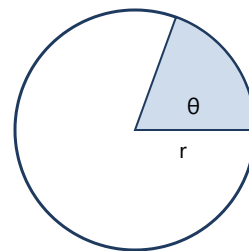
Model Convert 141.5° to radians. **1** Convert 212.8° to radians. **2** Convert 47.25° to radians.

2 · Circumference, arc length, circle area, sector area round to one decimal place

$$C = 2\pi r \quad s = (\theta/360) \cdot 2\pi r$$

$$A_{\text{circle}} = \pi r^2 \quad A_{\text{sector}} = (\theta/360) \cdot \pi r^2 \quad (\theta \text{ in degrees})$$

Model $r = 4.2$, $\theta = 110^\circ$. Find C , s , A_{circle} , and A_{sector} .

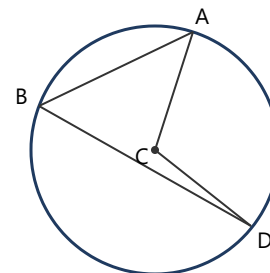


3 $r = 7.5$, $\theta = 48^\circ$. Find C , s , A_{circle} , and A_{sector} .

3 · Central and inscribed angles

Central angle = its intercepted arc. Inscribed angle = $\frac{1}{2} \times$ its intercepted arc.

Model C is the center and $\angle ACD = 152^\circ$. Find (a) $\angle ABD$ and (b) arc AD .



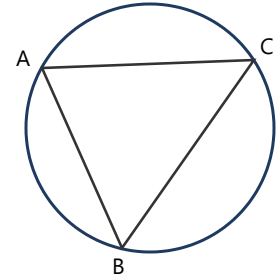
4 C is the center and $\angle ACD = 118^\circ$. Find (a) $\angle ABD$ and (b) arc AD .

5 Inscribed angle $\angle ABD = 41^\circ$. Find (a) arc AD and (b) central angle $\angle ACD$.

4 · Inscribed triangles

Use the arc to find the inscribed angle that intercepts it, use the 180° triangle sum, then double an angle to get its arc.

Model Arc AB = 50° and $\angle ABC = 72^\circ$. Find (a) $\angle BAC$ and (b) arc BC.



6 Arc AB = 90° and $\angle ABC = 55^\circ$. Find (a) $\angle BAC$ and (b) arc BC.

7 Arc AB = 70° and $\angle ABC = 60^\circ$. Find (a) $\angle BAC$ and (b) arc BC.

5 · Volume word problems

Convert inches to feet first (3 in = 0.25 ft). Box: $V = lwh$. Cylinder: $V = \pi r^2 h$. "At least" means round the number of bags **up**.

Model A garden bed is 24 ft long and 5 ft wide. How many 1.5 ft^3 bags of mulch are needed to cover it with at least 4 inches of mulch?

8 A garden bed is 20 ft long and 7 ft wide. Mulch comes in 2 ft^3 bags. How many bags are needed for at least 3 inches of mulch?

9 A circular flower bed has radius 5 ft. How many 2 ft^3 bags are needed for at least 2 inches of mulch?

Check yourself: an arc can't be more than 360° , an inscribed angle is always smaller than its arc, and a sector's area is always smaller than the whole circle's.