

Homework 8.5: Arc Length

Math 3

Name: _____

ARC LENGTH

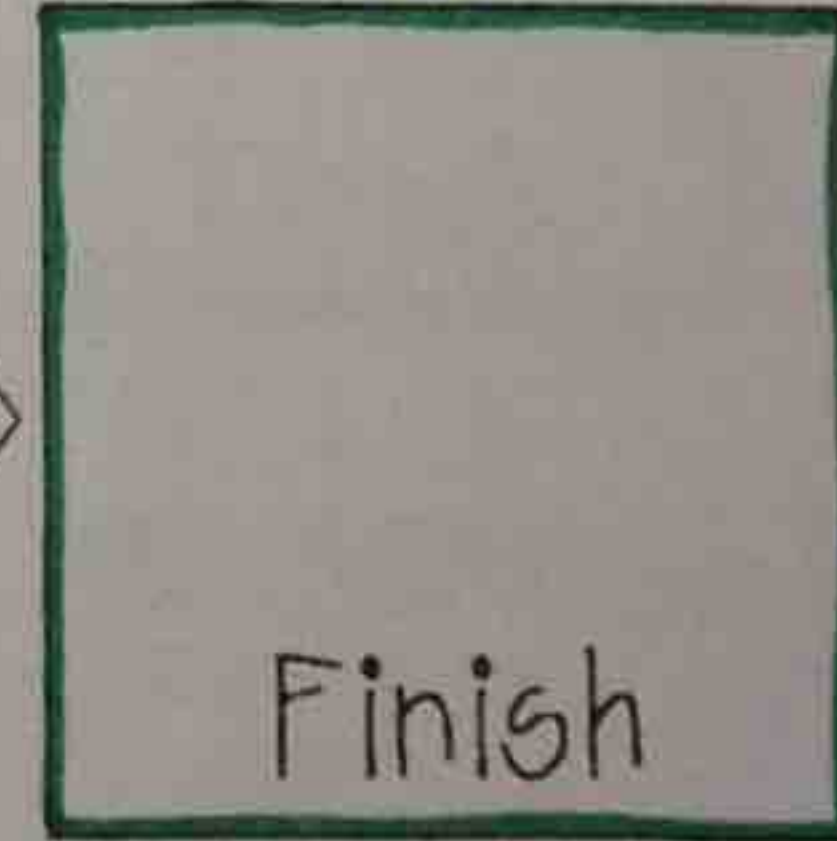
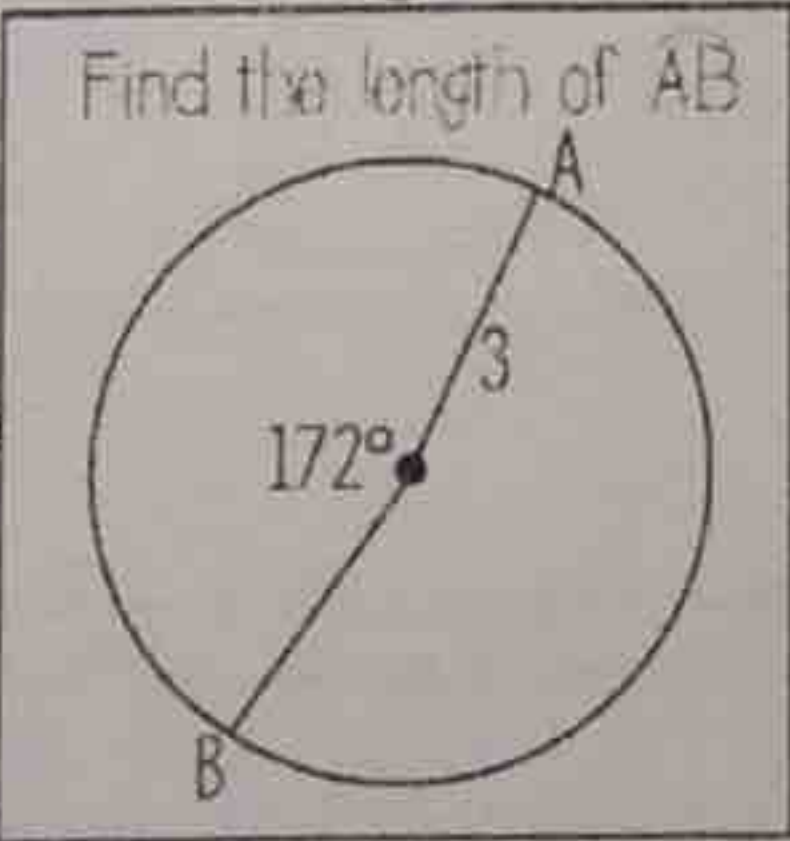
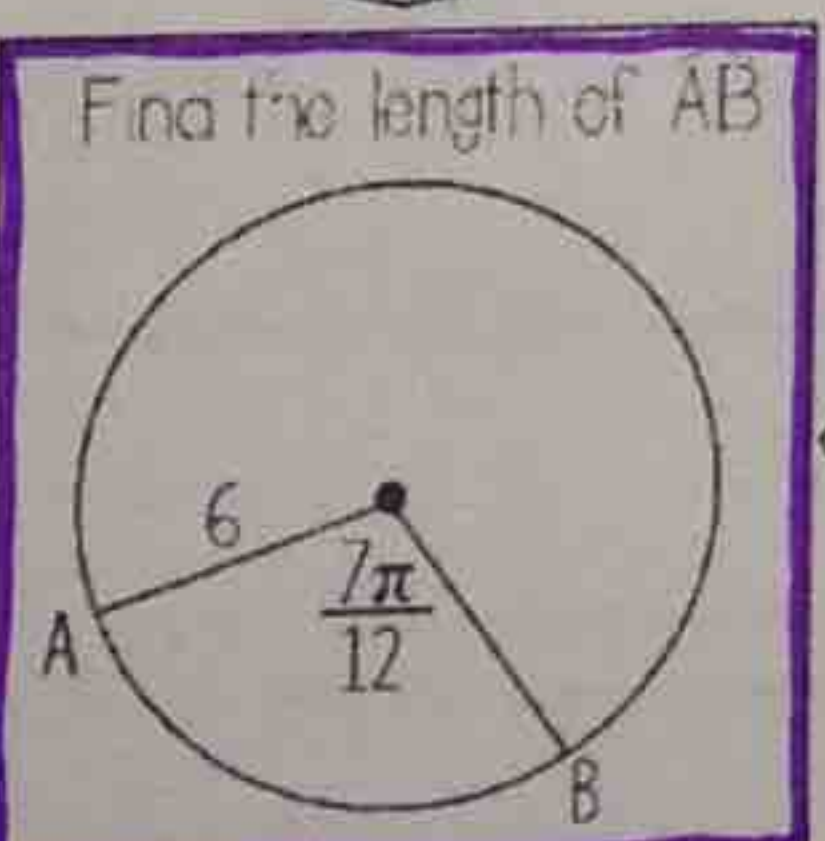
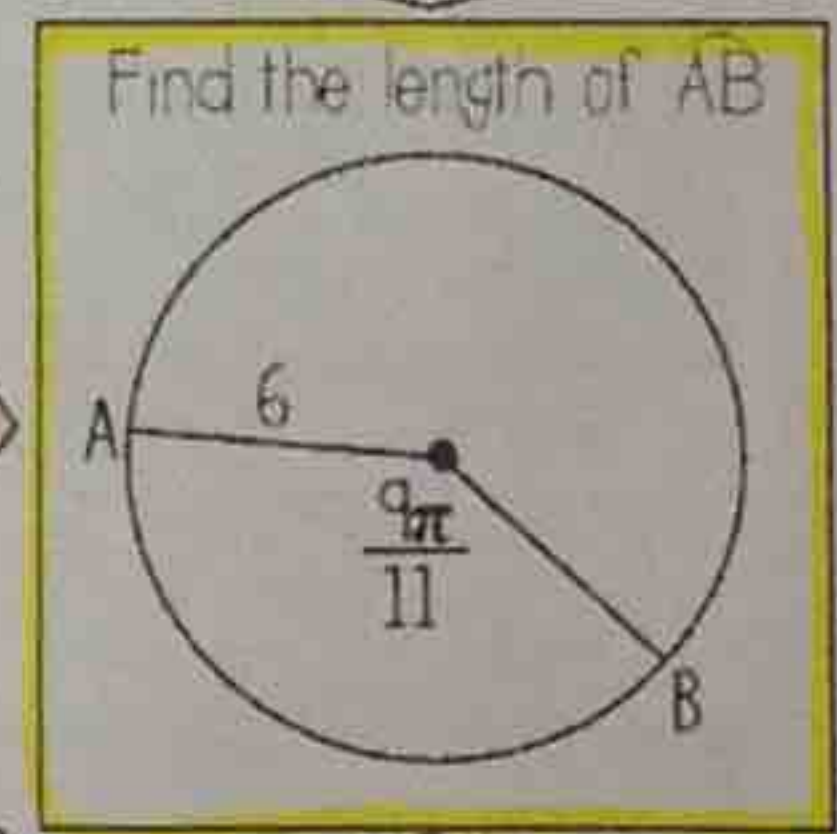
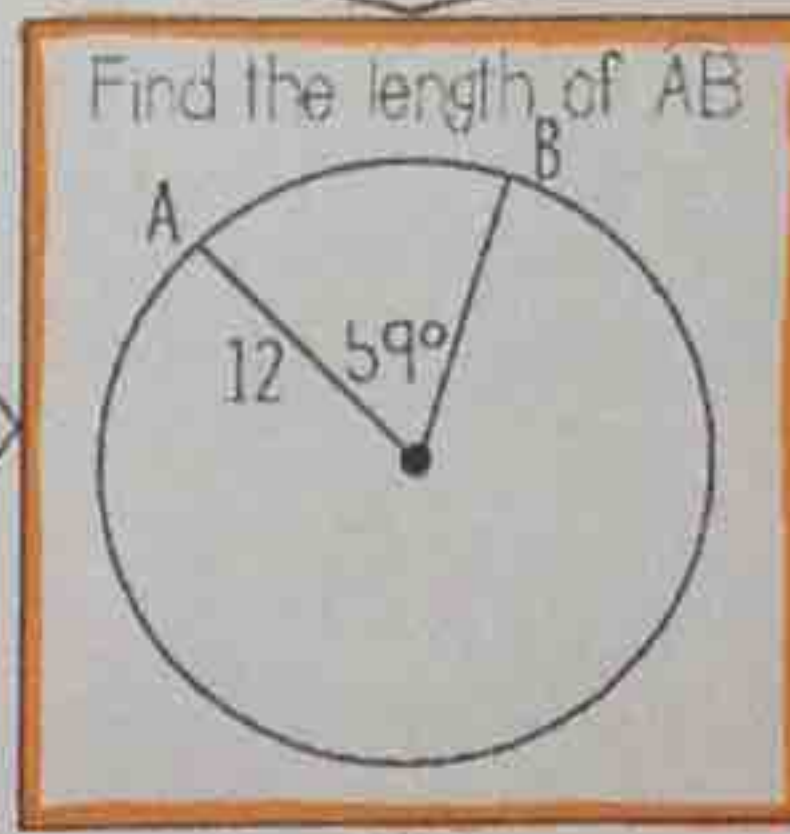
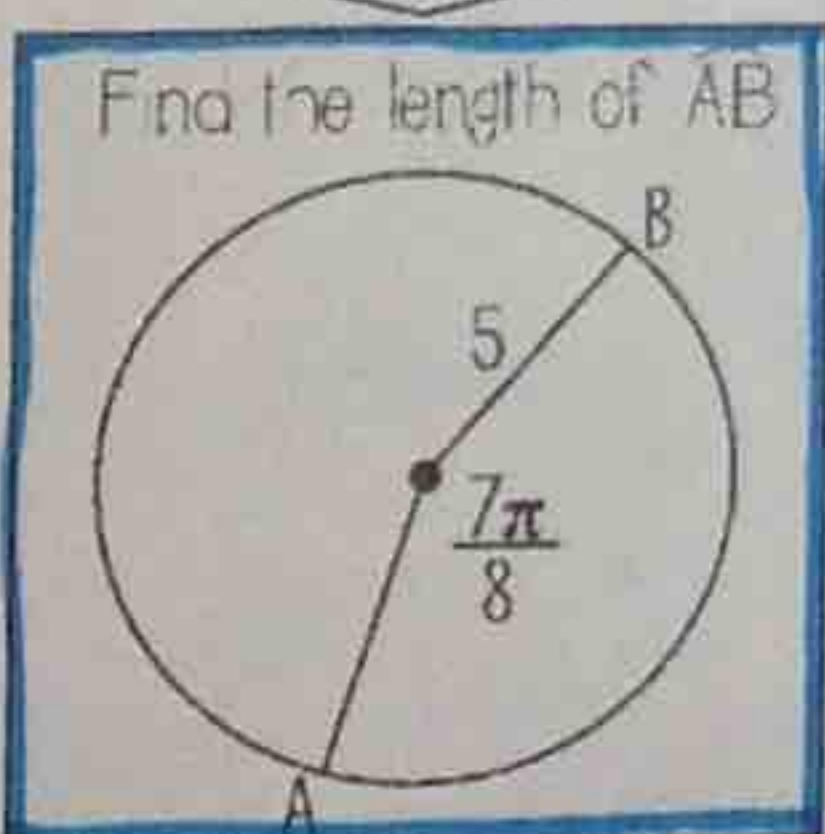
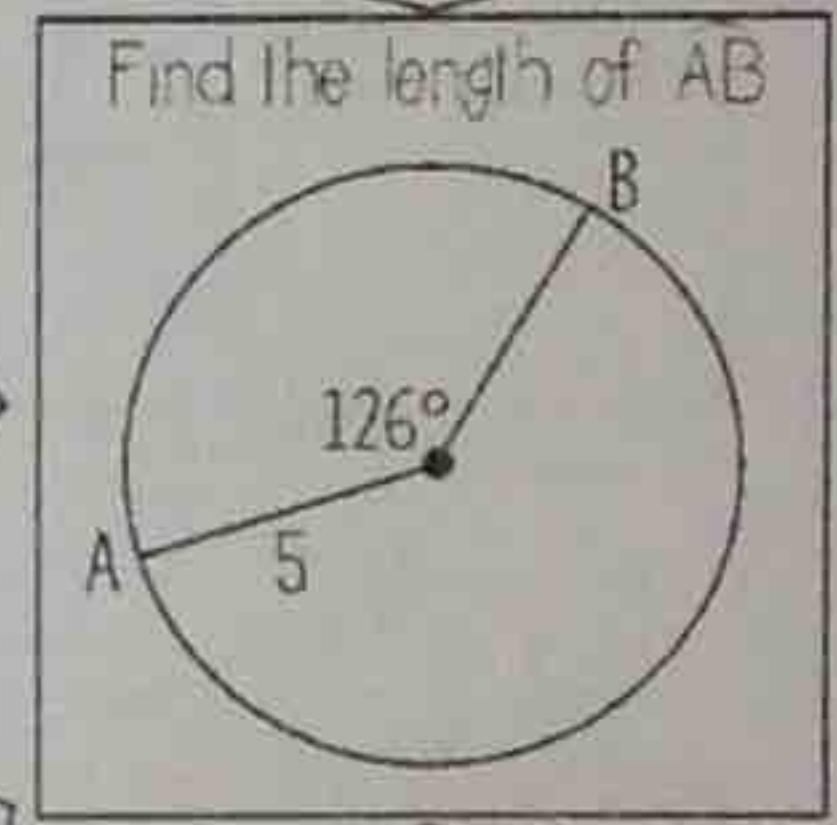
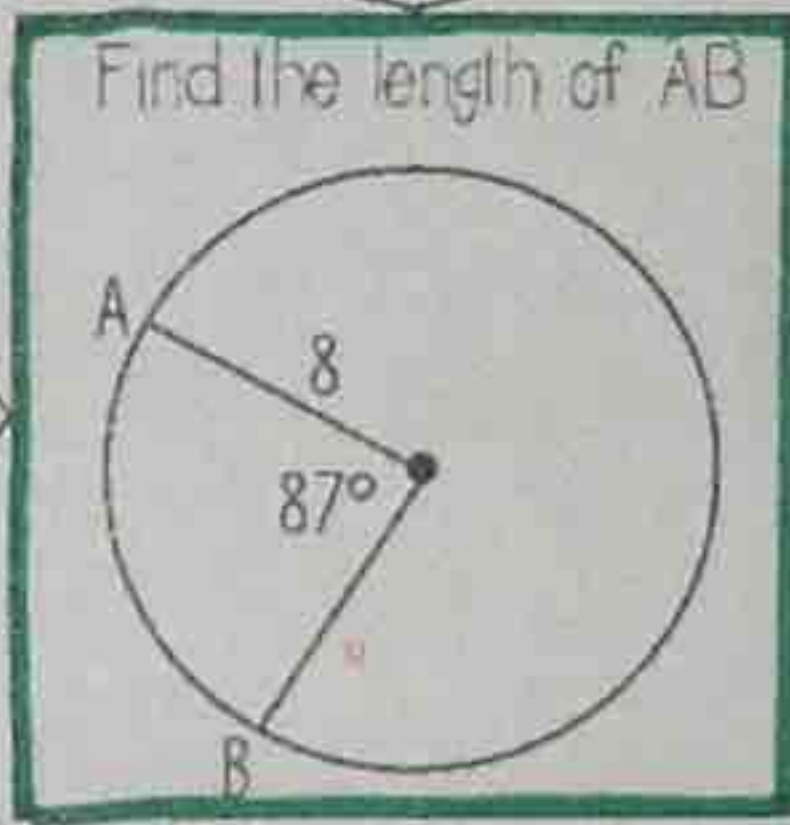
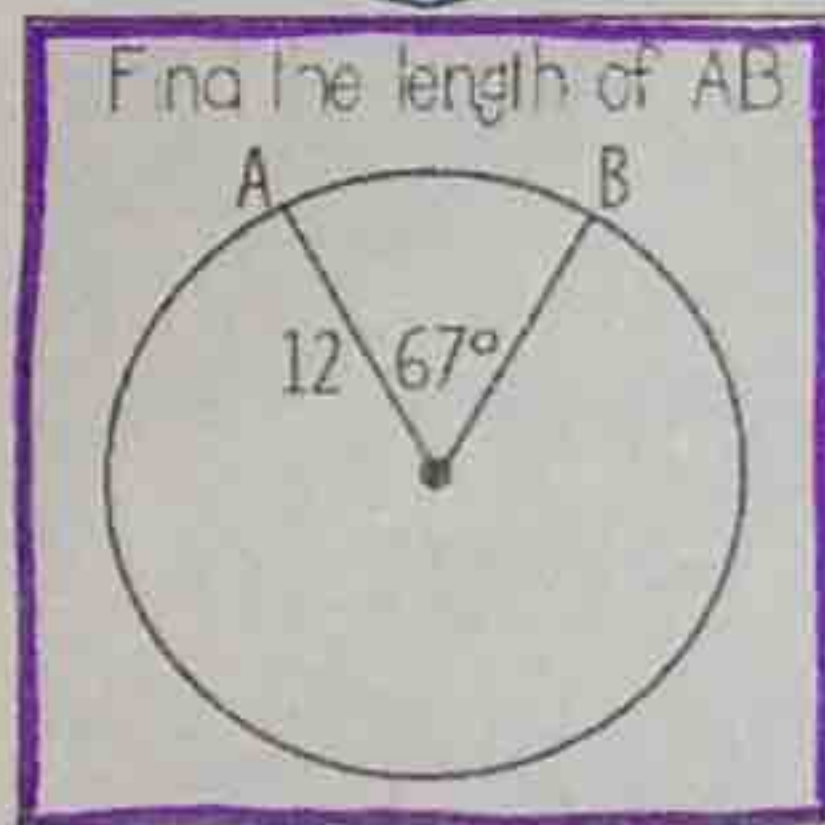
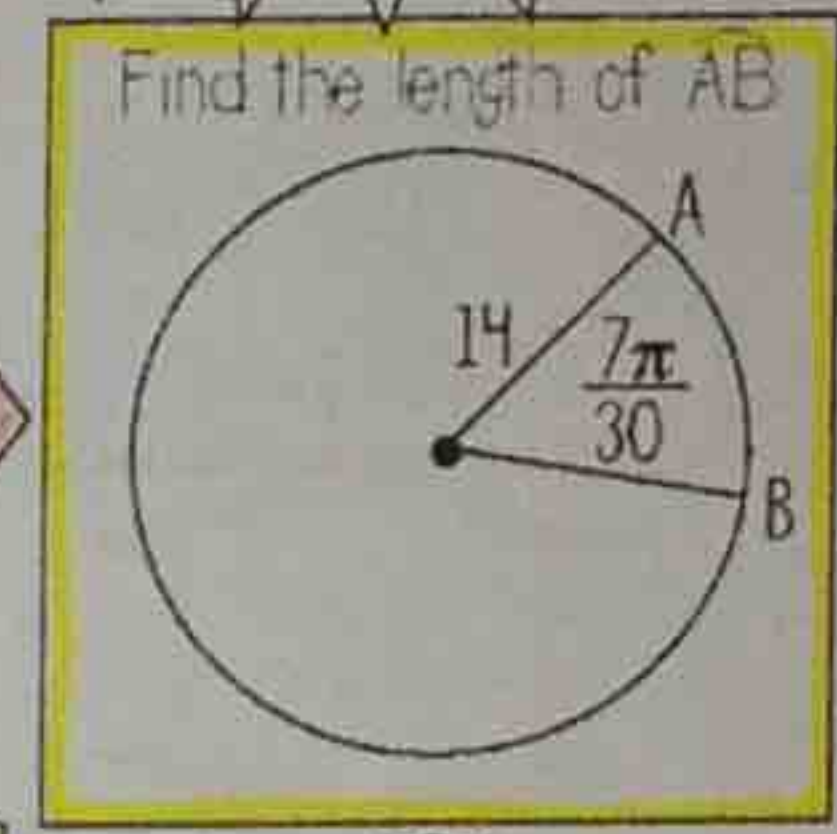
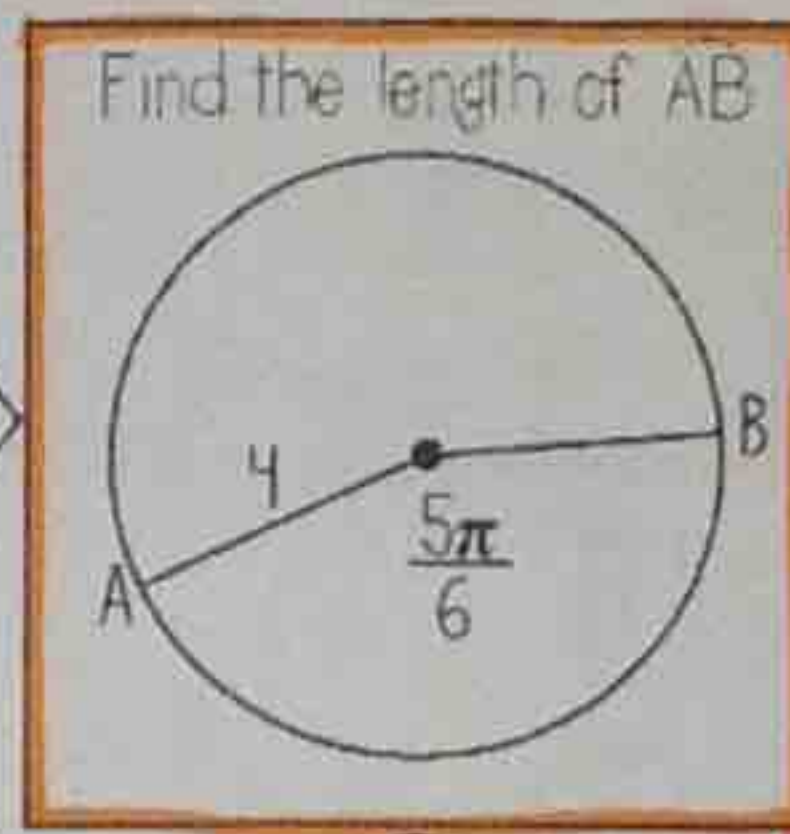
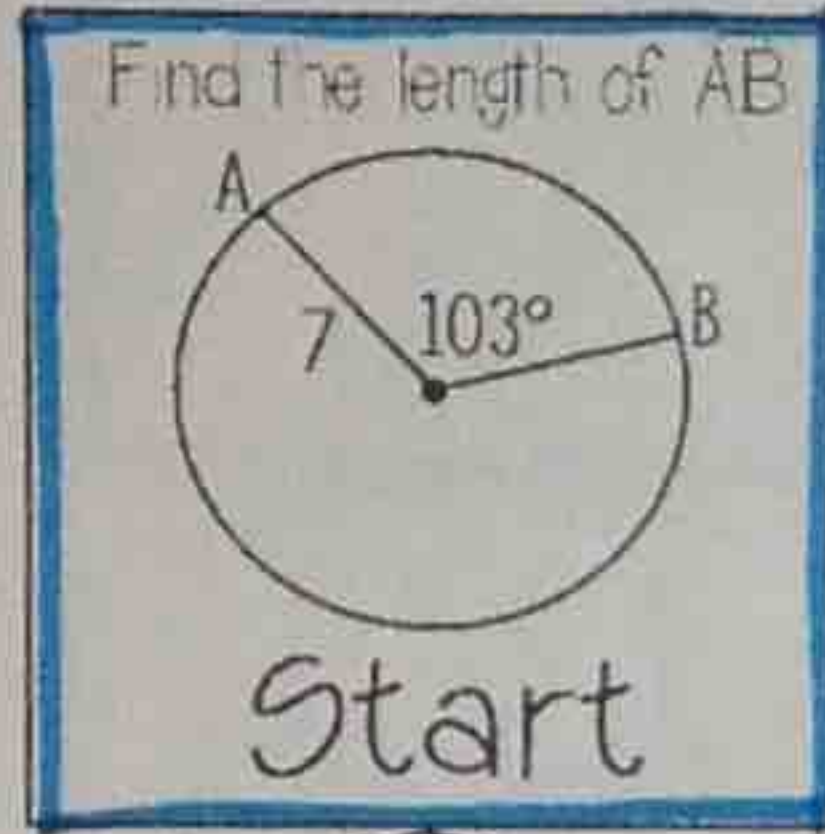
Using Degrees & Radians

Find the length of each arc

Round your answer to the nearest tenths place

ANSWER KEY

Some boxes might not be used



12.1

10.5

10.5

12.6

14.0

15.1

10.3

11.1

14.7

13.4

13.4

10.6

12.1

15.6

14.5

12.0

11.4

12.4

12.4

13.7

11.0

13.1

13.5

15.4

12.3

14.0

14.0

$$1. \quad \theta = 103 \cdot \frac{\pi}{180} = \frac{103\pi}{180}$$

$$\rho = 7 \left(\frac{103\pi}{180} \right) = 12.6$$

$$2. \quad \theta = 67 \cdot \frac{\pi}{180} = \frac{67\pi}{180}$$

$$\rho = 12 \left(\frac{67\pi}{180} \right) = 14.0$$

$$3. \quad \rho = 4 \left(\frac{5\pi}{6} \right) = 10.5$$

$$4. \quad \rho = 14 \left(\frac{7\pi}{30} \right) = 10.3$$

$$5. \quad \theta = \frac{87\pi}{180}$$

$$\rho = \left(\frac{87\pi}{180} \right) (8) = 12.1$$

$$6. \quad \rho = \frac{7\pi}{8} (5) = 13.7$$

$$7. \quad \rho = 6 \left(\frac{7\pi}{12} \right) = 11$$

$$8. \quad \theta = \frac{59\pi}{180}$$

$$\rho = 12 \left(\frac{59\pi}{180} \right) = 12.4$$

$$9. \quad \rho = \frac{9\pi}{11} (6) = 15.4$$

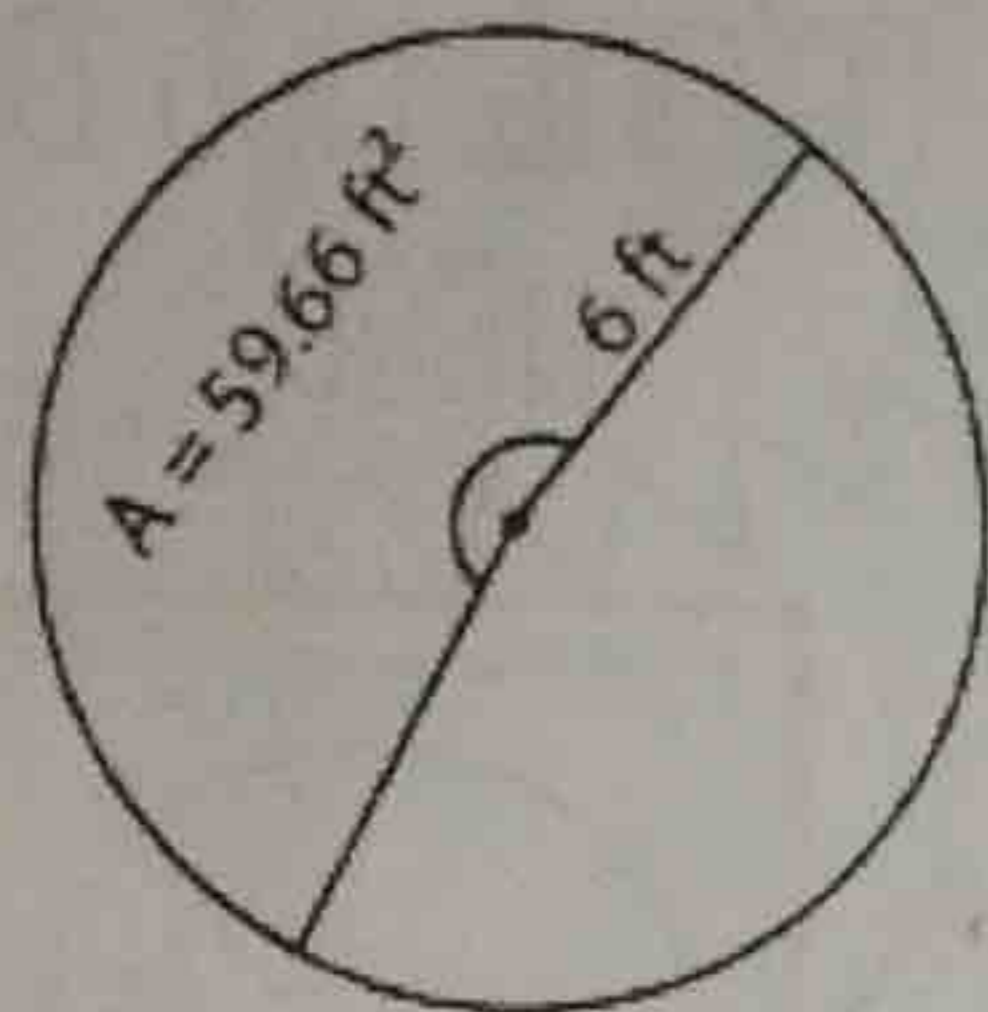
Homework 8.6: Area of a Sector

Name: _____

Math 3

Find the missing one. Round the radius and central angle to the nearest whole number.
Round the area to two decimal places. (use $\pi = 3.14$)

1)



Radius = 6 ft

Central angle = 190°

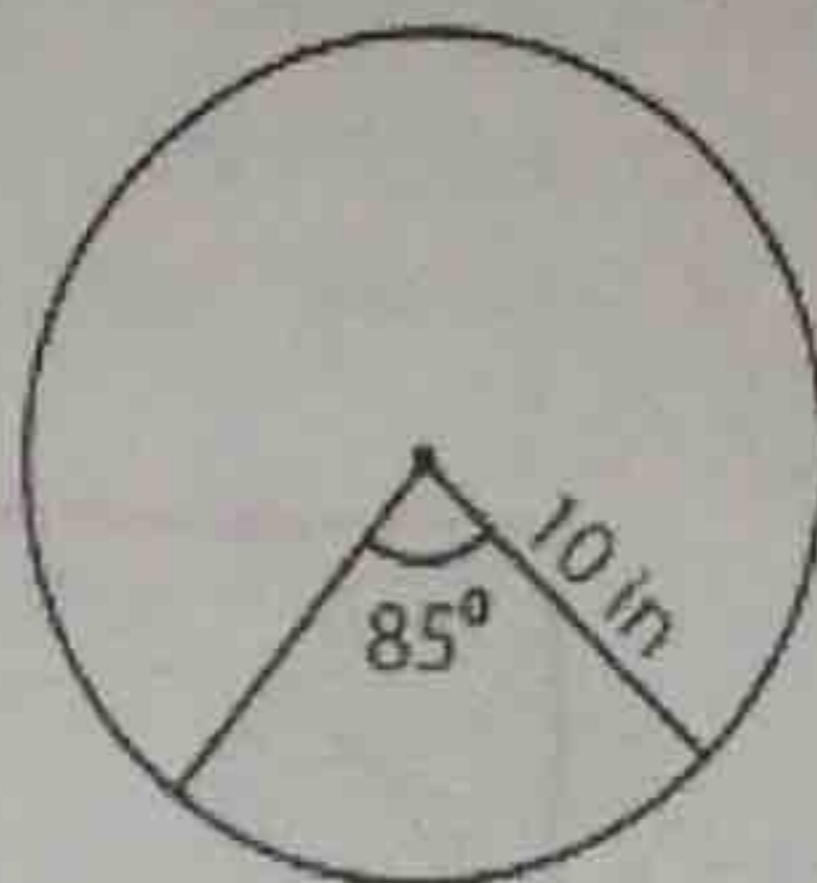
Area of a sector = 59.66 ft²

$$59.66 = \frac{(3.14)(36)\theta}{360}$$

$$21477.6 = 113.04\theta$$

$$\theta = 190^\circ$$

2)



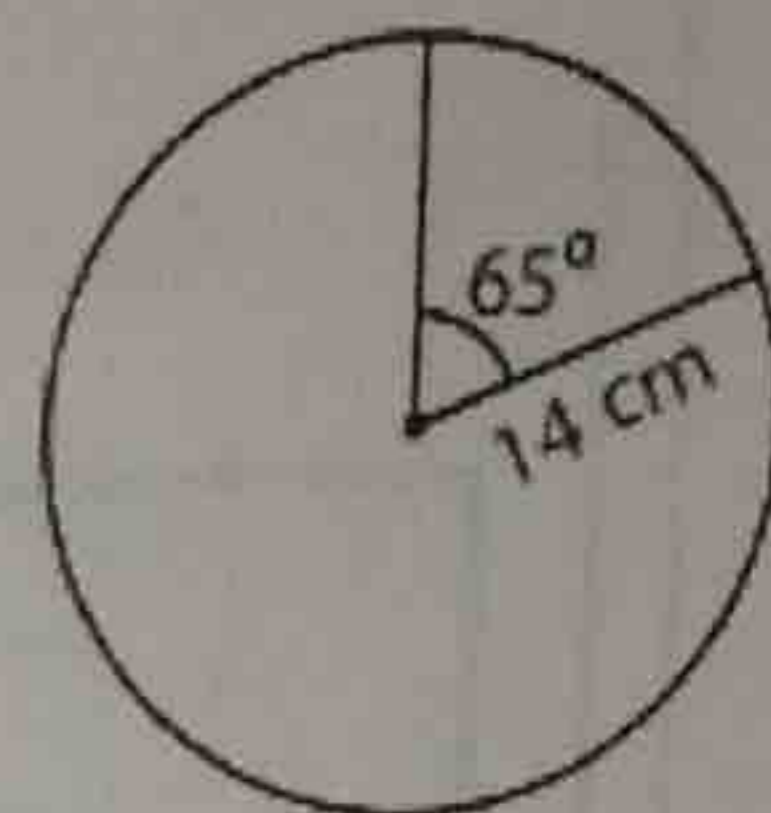
Radius = 10 in

Central angle = 85°

Area of a sector = 74.14 in²

$$A = \frac{(3.14)(10)^2(85)}{360}$$

3)



Radius = 14 cm

Central angle = 65°

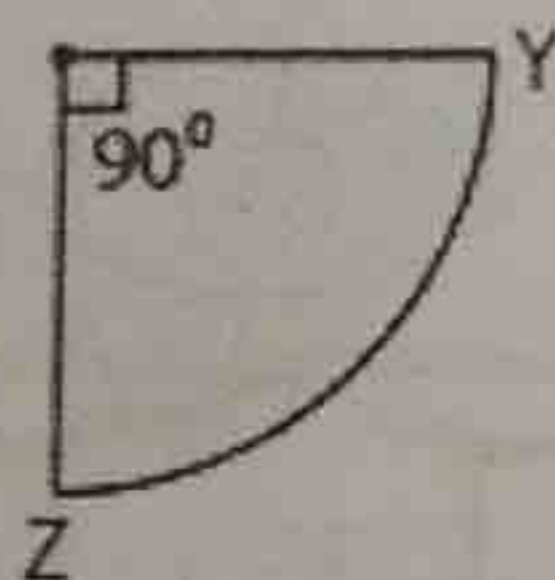
Area of a sector = 111.12 cm²

$$A = \frac{(3.14)(14)^2(65)}{360}$$

$$A = 111.12$$

Find the arc length for each sector. Round the answer to two decimal places. (use $\pi = 3.14$)

1)



Area = 153.86 cm²

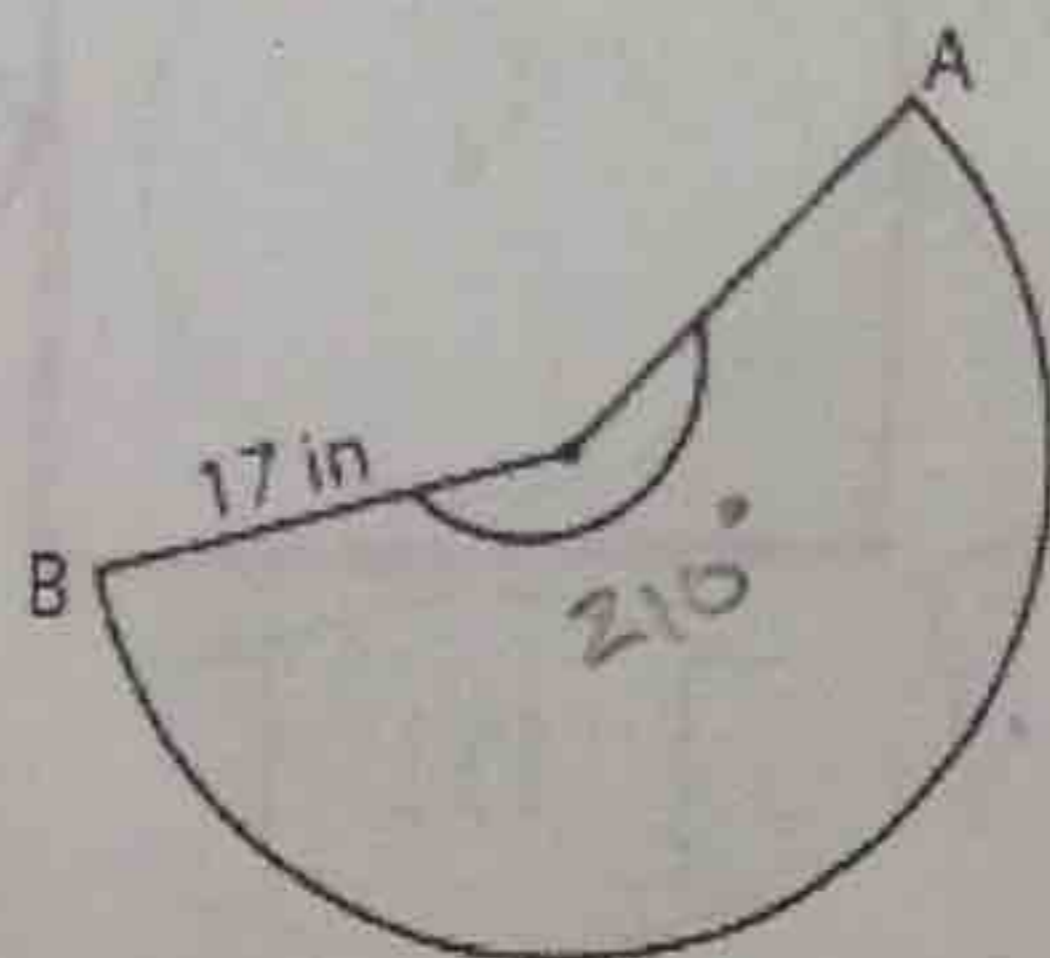
Length of the arc YZ = 21.98 cm

$$153.86 = \frac{(3.14)r^2(90)}{360}$$

$$r^2 = 196 \quad r = 14$$

$$l = \left(\frac{\pi}{2}\right)(14) = 21.98$$

2)



Area = 529.35 in²

Length of the arc AB = 62.28 in

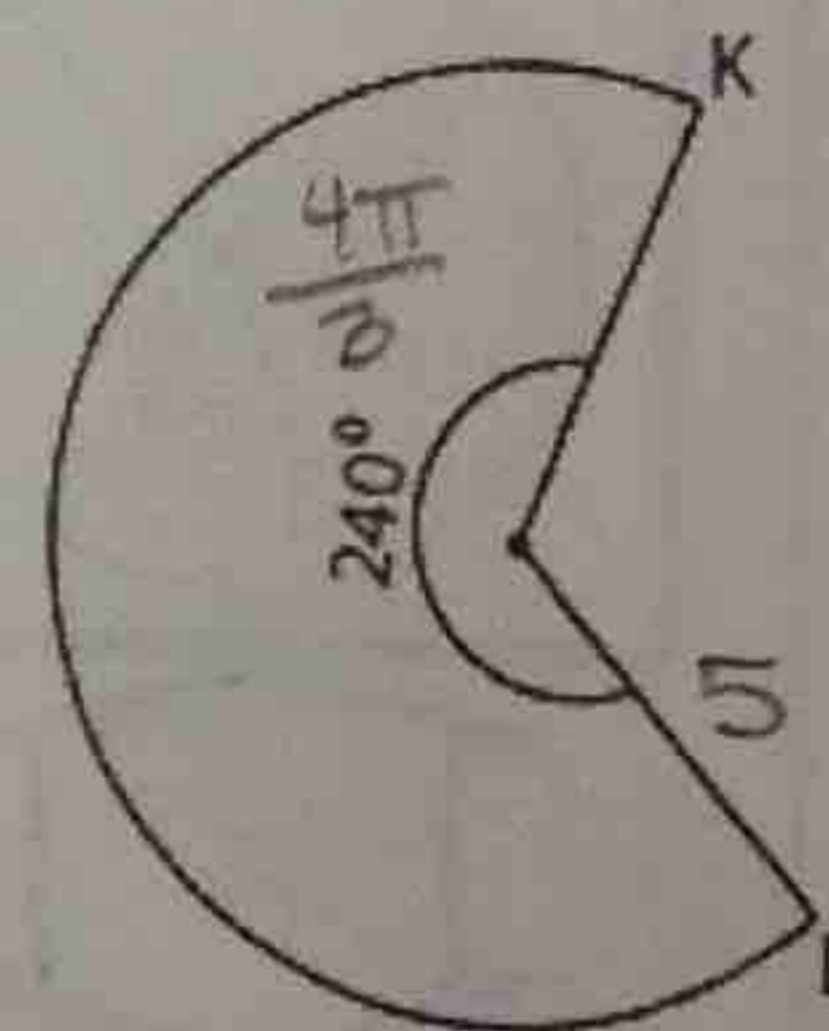
$$529.35 = \frac{(3.14)(17)^2(\theta)}{2\pi}$$

$$\theta = 3.66 = 210^\circ$$

$$l = (3.66)(17)$$

$$l = 62.28$$

3)



Area = 52.33 m²

Length of the arc KL = 20.93 m

$$52.33 = \frac{(3.14)(r^2)(240)}{360}$$

$$25 = r^2 \quad r = 5$$

$$l = \frac{4\pi}{3}(5) = 20.93$$