Answer Key · Lesson 3.4: Arc Length and Sector Area

School Launch · Trigonometry · Unit 3 · Worksheet A · for the parent

Key

1. $s = \frac{105\pi}{2}$; $A = \frac{1575\pi}{4}$

A circle has radius 15. For a central angle of $\frac{7\pi}{2}$, find the arc length and sector area (exact).

2. $s = \frac{35\pi}{2}$; $A = \frac{245\pi}{2}$

A circle has radius 14. For a central angle of $\frac{5\pi}{4}$, find the arc length and sector area (exact).

3. $s = \frac{8\pi}{3}$; $A = \frac{32\pi}{3}$

A circle has radius 8. For a central angle of $\frac{\pi}{3}$, find the arc length and sector area (exact).

4. $s = 10\pi$; $A = 50\pi$

1. $s = 10 \cdot \pi = 10\pi$
2. $A = \frac{1}{2}(10)^2 \cdot \pi = 50\pi$

A circle has radius 10. For a central angle of π, find the arc length and sector area (exact).

5. $s = 25\pi$; $A = \frac{375\pi}{2}$

1. $s = 15 \cdot \dfrac{5\pi}{3} = 25\pi$
2. $A = \frac{1}{2}(15)^2 \cdot \dfrac{5\pi}{3} = \dfrac{375\pi}{2}$

A circle has radius 15. For a central angle of $\frac{5\pi}{3}$, find the arc length and sector area (exact).

6. $s = \frac{55\pi}{3}$; $A = \frac{605\pi}{6}$

1. $s = 11 \cdot \dfrac{5\pi}{3} = \dfrac{55\pi}{3}$
2. $A = \frac{1}{2}(11)^2 \cdot \dfrac{5\pi}{3} = \dfrac{605\pi}{6}$

A circle has radius 11. For a central angle of $\frac{5\pi}{3}$, find the arc length and sector area (exact).

7. $s = 8\pi$; $A = 24\pi$

1. $s = 6 \cdot \dfrac{4\pi}{3} = 8\pi$
2. $A = \frac{1}{2}(6)^2 \cdot \dfrac{4\pi}{3} = 24\pi$

A circle has radius 6. For a central angle of $\frac{4\pi}{3}$, find the arc length and sector area (exact).

8. $s = 3\pi$; $A = \frac{27\pi}{2}$

1. $s = 9 \cdot \dfrac{\pi}{3} = 3\pi$
2. $A = \frac{1}{2}(9)^2 \cdot \dfrac{\pi}{3} = \dfrac{27\pi}{2}$

A circle has radius 9. For a central angle of $\frac{\pi}{3}$, find the arc length and sector area (exact).

9. $s = \frac{55\pi}{2}$; $A = \frac{605\pi}{4}$

1. $s = 11 \cdot \dfrac{5\pi}{2} = \dfrac{55\pi}{2}$
2. $A = \frac{1}{2}(11)^2 \cdot \dfrac{5\pi}{2} = \dfrac{605\pi}{4}$

A circle has radius 11. For a central angle of $\frac{5\pi}{2}$, find the arc length and sector area (exact).

10. $s = \frac{34\pi}{3}$; $A = \frac{289\pi}{3}$

1. $s = 17 \cdot \dfrac{2\pi}{3} = \dfrac{34\pi}{3}$
2. $A = \frac{1}{2}(17)^2 \cdot \dfrac{2\pi}{3} = \dfrac{289\pi}{3}$

A circle has radius 17. For a central angle of $\frac{2\pi}{3}$, find the arc length and sector area (exact).