

Worksheet 1

Theme: Amusement Park Engineering

Name:

Class:



Section 1: Triangle Proofs – Rollercoaster Supports

Given:

- $AB \cong DE$
- $\angle A \cong \angle D$
- $BC \cong EF$

Prove: $\triangle ABC \cong \triangle DEF$

Write a **two-column proof** using ASA.



Section 2: Ride Ramp Trigonometry

A ride drops from a 90-ft tower at a **30° angle**.

- Find the **length of the slide**
- Find the **horizontal distance** traveled using sine and cosine



Section 3: Cylindrical Snack Kiosk

Kiosk has:

- Radius = 2.5 m, Height = 4 m
- Conical roof: Height = 2 m
Find:
- **Total Surface Area**

- **Total Volume**
(Use $\pi \approx 3.14$)



Section 4: Sector Geometry – Carousel Floor Design

Carousel floor is a circle of radius 6 m.

- Calculate the **area** of a **90° sector**
- Find the **arc length** of that sector



Bonus Section: Amusement Park Map

Plot these points on a coordinate grid:

A(0,0), B(4,0), C(4,3), D(0,3)

- Name the shape
- Find perimeter and area
- Prove it's a rectangle using slopes