



MULTI-LEVEL MATH AND SCIENCE WORKSHEET

THE CAPITAL WHEEL FACTS:

- 41 gondolas, seats 8 per
- 1 VIP gondola, seats 4
- 2 min per rotation
- 180' tall (54.86 meters)
- 21 spokes
- Distance between spokes: 22 feet
- 4 50-Hp (horsepower) drive motors
- Wheel structure weighs 320 tons
- 1.6 million LED lights
- Each gondola weighs 1,500 lbs

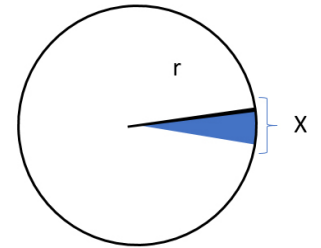
Use 3.14 for π , $9.8\text{m}/\text{sec}^2$ for gravitational constant, and 735.50 J/sec for 1 Hp



QUESTIONS

Q. The Capital Wheel has 41 regular gondolas with eight seats and one VIP gondola with four seats. How many passengers can ride on The Capital Wheel at one time?

Q. What is the radius of The Capital Wheel? What is the distance between the gondolas (the length of the arc X)?



Q. Gears and motors pull The Capital Wheel gondolas up. What pulls the gondolas down?

Q: What is the linear velocity of a car when The Capital Wheel is at top speed?

Q. What is the centripetal acceleration on a passenger at top speed? What is the direction of this acceleration?

Q: How much work does the The Capital Wheel do on a group of riders to raise them from the lowest point to the highest point on the wheel? The riders are in the same gondola and they have a combined mass of 300 kg.