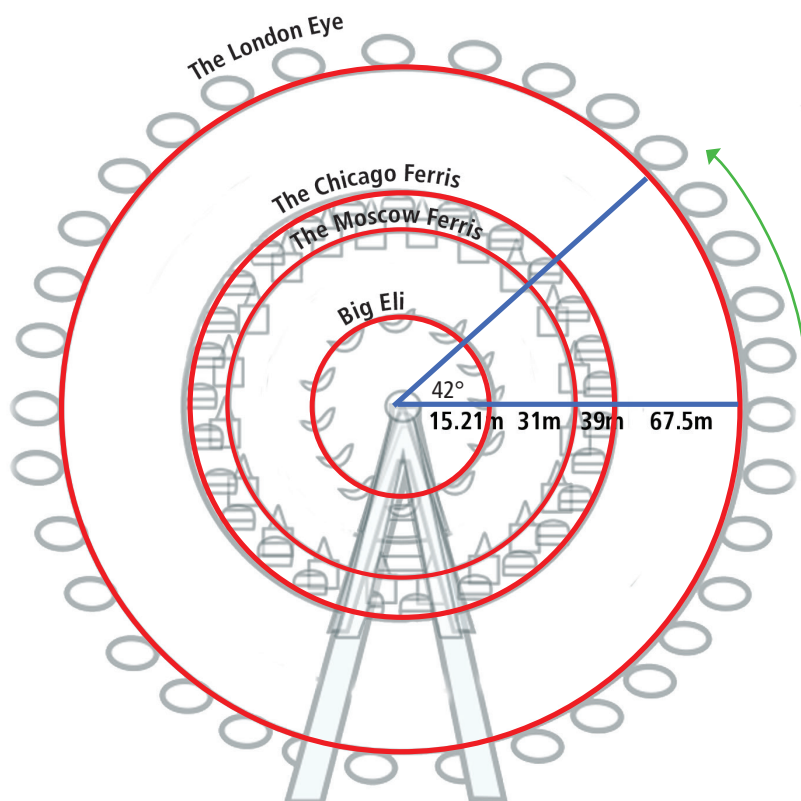


## Measuring a ferris wheel ride



Distance travelled (arc length cut off) by 42° of rotation

radius of wheel      length in metres

15.21m	11.1m
31.51m	23m
39.15m	28.58m
67.5m	49.3m

Start by converting 42° to radians (remember there are  $2\pi$ , or about 6.28, radians in a full revolution).

### Method 1

$$\frac{42}{360} = 11.7\% \text{ of a rotation}$$

Using a calculator 11.7 % of 6.28 is 0.73 radians

### Method 2

$$\frac{42}{360} = \frac{x}{6.28}$$

Where  $x$  = radians in 42°

$$360 x = 263.76$$

$$x = 0.73 \text{ radians}$$

To find the distance travelled around the circumference of each of the four ferris wheels for 42° of rotation, multiply number of radians travelled in 42° (0.73) by the radius of the ferris wheel.

The radian calculation for 42° and the arc length calculation for each wheel is set out in the two final columns of the table.

Ferris wheel	Radius (m)	angle of rotation			angle of rotation		
		in degrees	in radians	in metres	in degrees	in radians	in metres
Big Eli	15.21	35°	0.61	9.28	42°	0.73	11.1
Moscow Ferris	31.51			19.22			23
Chicago Ferris	39.15			23.9			28.6
London Eye	67.5			36.6			49.3