Question. A 1600-kg car is traveling at 20 m/s around a curve with a radius of 120 m. What is the angular momentum of the car?

Solution. Let us put a origin of a coordinate system in the center of the curve. In this coordinate system we can find the angular momentum of the car from equation $L = mvrsin\alpha$, α is the angle between velocity of the car and the radius of the curve. Since $\alpha = 90°$, so $sin\alpha = 1$ and

$$L = mvr$$

$$L = 1600 \cdot 20 \cdot 120 = 3{,}84 \cdot 10^6 \text{ kg m}^2/\text{s}$$

Answer: $L = 3{,}84 \cdot 10^6 \text{ kg} \frac{\text{m}^2}{\text{s}}$.