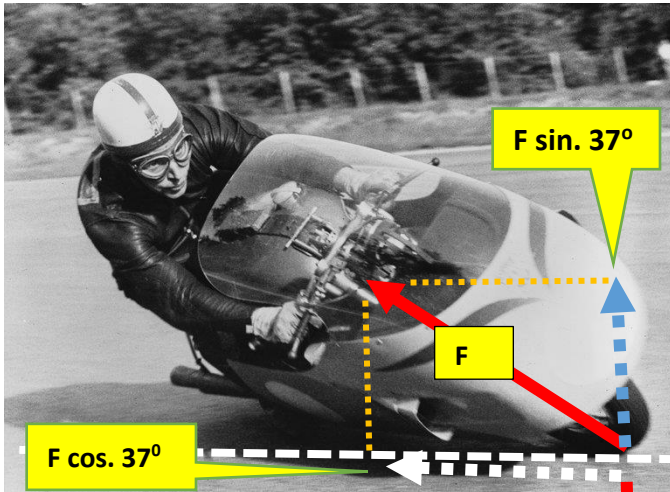


CENTRIPETAL FORCE

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John Surtees, Two- and Four-Wheel Racing Champion, Dies at 83



INTRODUCTION: To make any turn requires a centripetal force. In the case of this motorcycle the horizontal component ($F \cos. 37 \text{ degrees}$) of road force back on motorcycle provides the required centripetal force $m v^2 / R$. With no acceleration vertically: $F \sin. 37^\circ = m g$. Consider this motorcycle is moving at $60 \text{ mph} = 88 \text{ ft./s}$.

QUESTION: Find radius (R) of curvature of the motorcycle's turn?

HINT: Equals divided by equals = equal. $\tan.37^\circ = \sin37^\circ / \cos37^\circ$
Break solution into vertical and horizontal parts.

ANSWER: $R = \sim 182 \text{ ft}$.

John Surtees practicing for a motorcycle Grand Prix race in Monza, Italy, in 1957.

John Surtees, an Englishman who won seven world motorcycle championships, then switched to auto racing and captured the 1964 Formula One points title, becoming the only racer to have won two- and four-wheel world crowns, died on Friday in London. He was 83. He was being treated for a respiratory ailment at his death, his family said in a statement. Surtees was among Britain's most heralded auto racers of the 1960s, joining Graham Hill, Jim Clark and Jackie Stewart as Formula One champions in that decade. "As long as I can remember, speed and machines have been a part of me," Surtees told The Associated Press in the spring of 1966 as he returned to auto racing after a crash in Canada in 1965 that almost took his life. While barely into his teens, Surtees rode in a sidecar, alongside his father, who competed in motorcycle races. Surtees went on to win four world motorcycle titles with 500-cubic-centimeter engines and three others in the 350-c.c. division from 1956 through 1960, representing Italy's MV Agusta team. He was known to Italians as **Figlio del Vento — Son of the Wind**.