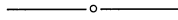


Now

$$\begin{aligned}\sin(a + b) &= \frac{PS}{PR} \\ &= \frac{(QT + TP)RT}{QR \cdot PR} \quad \text{by } (*) \\ &= \frac{RT}{PR} \frac{QT}{QR} + \frac{TP}{PR} \frac{RT}{QR} \\ &= \sin a \cos b + \cos a \sin b.\end{aligned}$$

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Extending Bernoulli's Inequality

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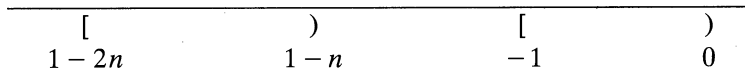
The standard statement of Bernoulli's inequality is: If $x \geq -1$ and n is a positive integer, then $(1 + x)^n \geq 1 + nx$. Clearly for $x < -2$ this does not hold for large odd values of n . What happens if $-2 \leq x < -1$? Add 1 to get

$$-1 \leq 1 + x < 0. \tag{1}$$

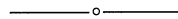
Now multiply $-2 \leq x < -1$ by n and add 1, to obtain

$$1 - 2n \leq 1 + nx < 1 - n. \tag{2}$$

If $n = 1$, Bernoulli's inequality is valid for any x . For $n \geq 2$, the graph



makes it easy to compare the location of $1 + x$ of (1) and $1 + nx$ of (2). From here it is easy to see why $(1 + x)^n \geq 1 + nx$. Hence, Bernoulli's inequality is valid for $x \geq -2$.



But Do You Like It?

This paper gives wrong solutions to trivial problems. The basic error, however, is not new.

Clifford Truesdell, *Mathematical Reviews* 12, p. 561.