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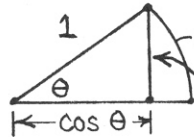

$$\boxed{1/11} \quad 20^\circ \left( \frac{\pi \text{ rad}}{180^\circ} \right) = 0.3491 \text{ rad}$$

$$\sin 20^\circ = 0.3420$$

$$\text{Percent error is } \frac{0.3420 - 0.3491}{0.3420} (100) = \underline{2.06\%}$$

$$\tan 20^\circ = 0.3640$$

$$\text{Percent error is } \frac{0.3640 - 0.3491}{0.3640} (100) = \underline{4.09\%}$$



The approximation  $\sin \theta \approx \theta$  involves the approximation that the arclength  $s = \theta$  is the vertical side of the triangle. The approximation that  $\tan \theta \approx \theta$  involves, in addition, the approximation that 1 is the horizontal side of the triangle.