Use the Fundamental Trig. Identities to evaluate all 6 trig functions:

1. $\tan\theta = \frac{1}{3}$ $\sec\theta = \frac{\sqrt{10}}{3}$

$\cot\theta = 3/1 = 3$

$\cos\theta = \frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$

$\tan\theta = \frac{\sin\theta}{\cos\theta}$ · $\cos\theta$

$\cos\theta \cdot \tan\theta = \sin\theta$

$\left(\frac{3\sqrt{10}}{10}\right)\left(\frac{1}{3}\right) = \frac{\sqrt{10}}{10}$

$\sin\theta = \frac{\sqrt{10}/10}{}$

$\cos\theta = \frac{3\sqrt{10}/10}{}$

$\tan\theta = \frac{1/3}{}$

$\csc\theta = \frac{10/\sqrt{10}}{} = \frac{10\sqrt{10}}{10} = \sqrt{1}$

$\sec\theta = \frac{\sqrt{10}/3}{}$

$\cot\theta = \frac{3/1 = 3}{}$

2. $\csc\left(\frac{\pi}{2} - \theta\right) = 3$ $\sin\theta = \frac{2\sqrt{2}}{3}$

$\sec\theta = 3$

$\cos\theta = \frac{1}{3}$

$\csc\theta = \frac{3}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{2}}{4}$

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{\frac{2\sqrt{2}}{3}}{\frac{1}{3}}$

$\tan\theta = \frac{2\sqrt{2}}{3} \cdot \frac{3}{1} = 2\sqrt{2}$

$\cot\theta = \frac{1}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{4}$

- $\sin\theta = \frac{2\sqrt{2}/3}{}$

$\cos\theta = \frac{1/3}{}$

$\tan\theta = \frac{2\sqrt{2}}{}$

$\csc\theta = \frac{3\sqrt{2}/4}{}$

$\sec\theta = \frac{3}{}$

$\cot\theta = \frac{\sqrt{2}/4}{}$

cos (−) tan (−)

3. $\sec\theta = -5$ $\tan < 0$

$1 + \tan^2\theta = \sec^2\theta$

$1 + \tan^2\theta = 25$

$\tan^2\theta = 24$

$\tan\theta = \pm\sqrt{24}$

$\tan\theta = -\sqrt{24}$

↓

$\cot\theta = \frac{1}{-\sqrt{24}} = \frac{-\sqrt{24}}{24}$ (Rationalize)

$\sin\theta = \frac{\sqrt{24}/5}{} = \frac{2\sqrt{6}}{5}$

$\cos\theta = \frac{-1/5}{}$

$\tan\theta = \frac{-\sqrt{24}}{} = -2\sqrt{6}$

$\csc\theta = \frac{5\sqrt{24}}{24} = \frac{5\sqrt{6}}{12}$

$\sec\theta = \frac{-5}{}$

$\cot\theta = \frac{-\sqrt{24}/24}{}$

$= \frac{-2\sqrt{6}}{24}$

$= \frac{-\sqrt{6}}{12}$

$\frac{\sin\theta}{\cos\theta} = \tan\theta$

$\sin\theta = \tan\theta \cdot \cos\theta$

↓ ↓

$\sin\theta = -\sqrt{24} \cdot \frac{-1}{5} = \frac{\sqrt{24}}{5} =$

↓

$\csc\theta = \frac{5}{\sqrt{24}} = \frac{5\sqrt{24}}{24} = \frac{10\sqrt{6}}{24} = \frac{5\sqrt{6}}{12}$ (Rationalize)