

2.1 – Using Fundamental Trigonometric Identities

Be sure to follow [College Algebra formatting guidelines](#) in your work.

Be sure to show all work and circle final answers.

- (5 pts) Given  $\sec(x) = -\frac{7}{3}$  and  $\tan(x) < 0$ , find the value of the other 5 trigonometric functions corresponding to the angle  $x$ .
- (5 pts) Factor and simplify  $\tan^2(x) - \tan^2(x)\sin^2(x)$ .
- (5 pts) Factor and simplify  $15\sin^2(x) - 22\sin(x) + 8$ . If you're not big on factoring quadratic expressions, you might try the Sledgehammer Approach to Factoring from College Algebra: [Video](#) and [Notes](#).
- (5 pts) Factor and simplify  $\cot^2(\theta) + \csc(\theta) - 11$ . I suggest you employ a Pythagorean Identity to help you along.
- (5 pts) Simplify  $5\sin\left(\frac{\pi}{2} - \theta\right)\csc(\theta)$
- (5 pts) Simplify  $\tan(x) - \frac{\sec^2(x)}{\tan(x)}$ . Hint: Pythagorean Identity and the arithmetic of fractions.