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Name: \_\_\_\_\_

1. (6 points)  $\int \frac{\cos(x) + \sec(x)}{\cos(x)} dx =$

2. (7 points) Suppose  $f(x)$  is a function for which  $f'(x) = 12x^2 - 6x + 1$  and  $f(1) = 5$ . Find  $f(x)$ .

3. (7 points) A rock, propelled straight down from the top of a bridge over a river at time  $t = 0$  seconds has a velocity of  $v(t) = -32t - 5$  feet per second at time  $t$ . The rock hits water with a velocity of  $-69$  feet per second. How high is the bridge?

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Name: \_\_\_\_\_

1. (6 points)  $\int x^2 (x^3 + 9x + 18) dx =$

2. (7 points) Suppose  $f(x)$  is a function for which  $f'(x) = 9x^2 + 4x - 8$  and  $f(-1) = 1$ . Find  $f(x)$ .

3. (7 points) A block sliding down a 100-foot-long ramp has a constant acceleration of 2 feet per second per second. Its initial velocity (at the very top of the ramp) is 15 feet per second. How long does it take for the block to slide down the ramp.

