

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

**Directions:** Show all work. No credit for answers without work.

1. [3 points] Use the translation theorem to find the inverse Laplace transform of  $F(s) = \frac{3s+7}{(s+9)^4}$ .

2. [3 points] Find the convolution  $t^2 * t$ .

3. [4 points] Use the Laplace transform to solve the following IVP.

$$x^{(3)} + x'' - 6x' = 0; x(0) = 0, x'(0) = 1, x''(0) = 1$$