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% Parameters
beta = 0.7182;
theta = 3831;
t = linspace(0, 30, 1000); % Time from 0 to 30 years

% Function definition
R = exp(- (t ./ theta).^beta);

% Calculate specific points
t_points = [0, 5, 20];
R_points = exp(- (t_points ./ theta).^beta);

% Plotting
figure;
plot(t, R, 'b-', 'LineWidth', 1.5); hold on;
plot(t_points, R_points, 'ro', 'MarkerSize', 8, 'LineWidth', 1.5);
text(t_points(1), R_points(1), sprintf('R(0) = %.3f', R_points(1)),
'VerticalAlignment', 'bottom');
text(t_points(2), R_points(2), sprintf('R(5) = %.3f', R_points(2)),
'VerticalAlignment', 'bottom');
text(t_points(3), R_points(3), sprintf('R(20) = %.3f', R_points(3)),
'VerticalAlignment', 'bottom');

% Labels and Title
xlabel('Time (years)');
ylabel('R(t)');
title('Plot of R(t; \beta, \theta) = exp(- (t/\theta)^\beta)');
grid on;
hold off;

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