EXAM 2 - COMPUTATION:

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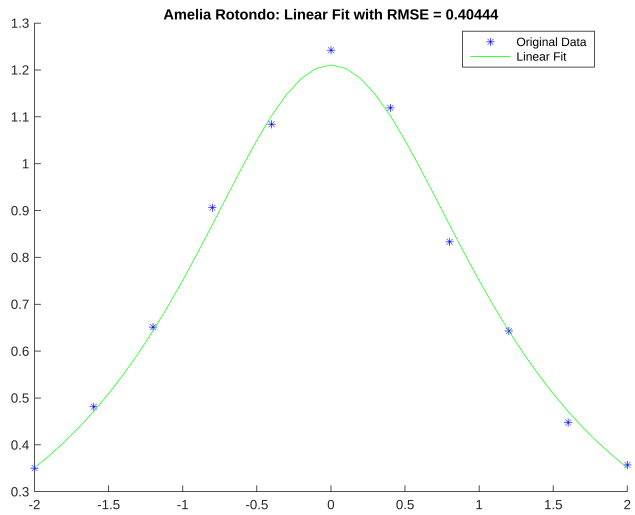
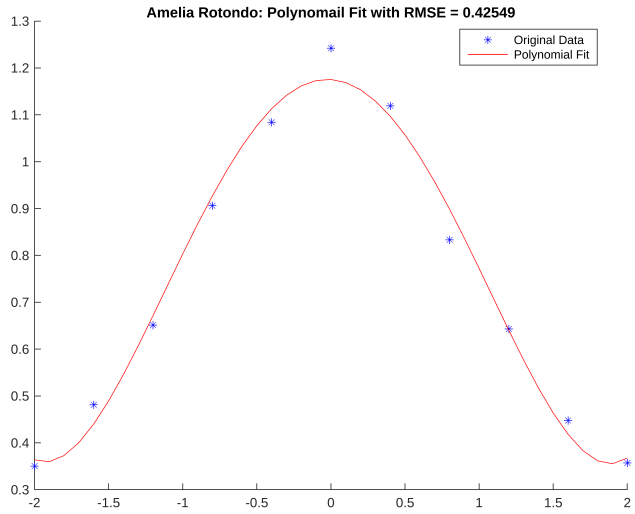
```
% Initialize Data
x = -2:0.4:2;
y1 = [0.35 0.481 0.651 0.906 1.084];
y2 = [1.242 1.119 0.833 0.643 0.448 0.357];
y = [y1 y2];
xx = min(x):0.1:max(x);

% produce a Linear Fit
X = x.^2;
XX = xx.^2;
Y = 1./y;
P = polyfit(X, Y, 1);
YY = 1 ./ polyval(P, XX);

% Find Root-Mean Square Error
fit_rmse = myRmse(y,YY);

% Plot Your Results
titlename = append('Amelia Rotondo: Linear Fit with RMSE = ',
num2str(fit_rmse));
figure(1); clf; hold on;
plot(x, y, 'b*', 'DisplayName', 'Original Data');
plot(xx, YY, 'g', 'DisplayName', 'Linear Fit');
hold off;
title(titlename);
legend('Location', 'best');
```



```
% produce a Polynomial of Degree 4
p = polyfit(x, y, 4);
yy4 = polyval(p, xx);

% Find Root-Mean Square Error
poly_rmse = myRmse(y,yy4);

% Plot Your Results
titlename = append('Amelia Rotondo: Polynomail Fit with RMSE = ',
num2str(poly_rmse));
figure(2); clf; hold on;
plot(x, y, 'b*', 'DisplayName', 'Original Data');
plot(xx, yy4, 'r', 'DisplayName', 'Polynomial Fit');
hold off;
title(titlename);
legend('Location', 'best');
```



Function for the Root-Mean Squared Error:

```
function [rmse] = myRmse(ypoints, yfunc)
    mse = myMse(ypoints, yfunc);
    rmse = sqrt(mse);
end

% Mean Squared Error Function
function [mse] = myMse(ypoints, yfunc)
SSE = 0;
for i = 1:length(ypoints)
    SSE = SSE + (ypoints(i)-yfunc(i))^2;
end
mse = (1/length(ypoints))*SSE;
end
```