Abe Porschet Test1 corrections:

1) a,d

2) b,d
3) I had correct answers for 3.

4) a,b
5) c,d

6) We want to make a linear model and we want to try and find a linear relationship that models how my APR at payment responds to and is affected by the actions taken by the federal reserve and my personal spending habits. Then, to fit the data to my model I would do a least squares regression and using the formula I would find the slope of the regression(Beta1hat) and then use the formula of mean APR - Beta1hat(mean payment) to get the intercept. Using those two found values I can create a regression equation in the form y_hat=beta0+beta1*x. To assess the fit of the model I would first create a residual vs fitted values plot to check for linearity and constant variance, then I would create a normal quantile plot to check for normality. Using my model I could find a confidence interval for the slope of my model to see the range of possibilities for how my bill could change depending on the change in my habits and/or the decisions made by the federal reserve.
7) In this example, because the linear regression shown in the comic is not very far from the mean of the data overall it means that the difference between the data and the mean squared is relatively close to the difference to the data and the expected values squared because the expected values appear very close to the mean. The SSmod has a slight positive slope, meaning that the SSmod will probably be slightly smaller than the SSE but they will be quite close.

8) a) The fitted values vs residuals plot seems to strongly suggest linearity and constant variance because of how evenly the residuals fall above and below zero and how there is not a very strong pattern for how the residuals fall. In the normal quantile plot, because of the way the residuals are distributed around the line, closely but without a clear pattern, it suggests normality. The questions discusses the fact that the sample of diamonds was a simple random sample which satisfies randomness and there are not any glaring flags when it comes to judging independence because the variables are not exactly temporal, spatial, or genetic or anything with obvious independence problems like that.
9) a) the correct answer is that the standard deviation is 30.84 calories
   c) I think that the right test would be a one sample z-test because you are comparing one person to the mean of an entire population which has way more than the requisite 30 values. The null hypothesis would be that there is no difference in our runner's calories burned per mile and the average for the population of his age and the alternative hypothesis would be that there is a statistically significant difference between his calories burned per mile and the average for the population of his age.