Palm Products Company has collected data on its average variable costs of production for the

 past 12 months. The costs have been adjusted for inflation by deflating with an appropriate price index. The *AVC* and associated output data are presented below:

 *obs Q AVC obs Q AVC*

1 22 $208 7 45 $172

 2 31 202 8 45 158

 3 31 206 9 45 173

 4 25 214 10 62 170

 5 41 174 11 62 152

 6 41 203 12 70 175

 a. Run the appropriate regression (below) to estimate the parameters for the empirical cost

 function:

 *AVC = a + bQ* + *cQ2*

 ***(Post your computer output here)***

 b. Using a 10 percent significance level test for the statistical significance of the parameters

 obtained in *a,* then discuss the suitability (considering their algebraic signs) of the

 parameter estimates.

 c. Present (state) the estimated average variable cost, total variable cost, and short-run marginal

 cost functions.

 d. (i) At what level of output does *AVC* reach its minimum value?

 (ii) What is the minimum value of *AVC* at its minimum?

 e. (i) Compute *AVC* and *SMC* when Palm Products produces 20 units of output:

 (ii) Is *AVC* rising or falling when Palm produces 20 units? Explain.

 f. At what level of output does *SMC* equal *AVC*? How did you get this answer?