

Due September 29, 2010, at the **beginning of section**

1. The average height of a large group of children is 50 inches and the SD is 1.5 inches. The average weight of these children is 50 pounds and the SD is 2 pounds. A scatter diagram is drawn, with height on the horizontal axis and weight on the vertical axis. The scatter diagram is football shaped. The correlation between the two variables is 0.65. The regression line for estimating weight based on height is drawn through the scatter.
- (a) A child who is 47 inches tall is estimated to weigh _____ pounds, give or take _____ pounds.
 - (b) Of the children who are 47 inches tall, about what percent weigh more than 50 pounds?
 - (c) Among all the children in the group, about what percent weigh more than 50 pounds?
 - (d) A child who is 52 inches tall is estimated to weigh _____ pounds, give or take _____ pounds.
 - (e) One of the children weighs 51 pounds and is 53 inches tall. The point corresponding to this student on the scatter diagram
 - (i) is above (ii) is on (iii) is below (iv) cannot be placed relative to the regression line for estimating weight based on height.
 - (f) For about 80% of the children, the regression estimate of weight based on height is correct to within _____ pounds.
 - (g) For about 20% of the children, the regression estimate of weight based on height is off by more than _____ pounds.
 - (h) The weights of about _____ % of the children are within 2.5 pounds of the average.
 - (i) For about _____ % of the children, the regression estimate of weight based on height is correct to within 2.5 pounds.
 - (j) For about _____ % of the children, the regression estimate of weight based on height is off by more than 2.5 pounds.

Hint: Remember r.m.s. error is to the regression estimate of y as the SD is to the average of y .