**Indicate “+” for true, “O” for false.**

__ 1. When choosing between two different regression models, i.e., "fits" of a curve to data points, the model with the lower value of $R^2$ should be chosen.

__ 2. In linear regression, the "error" of a curve fitted to data points $(x_i, y_i)$ is the vertical distance between the curve and the point $(x_i, y_i)$.

In the "newsboy" problem, …

___ 3. we assume that we know the probability distribution of the daily demand.

___ 4. an order for newspapers must be placed before the demand is known.

___ 5. any excess inventory at the end of the day may be carried over to satisfy the next day’s demand.

___ 6. if demand exceeds the quantity ordered, additional newspapers may be ordered at a higher cost.

___ 7. the number of newspapers delivered to the newsboy is random.

___ 8. Linear regression requires solving a linear programming problem.

___ 9. Student A performs ten simulations of the newsboy problem, and student B performs twenty. Suppose that both get the same average profits and the same sample variances. Then both will get the same 95%-confidence interval for the expected profit.

**Multiple choice:**

___ 10. Given a set of data points $(x_i,y_i), i=1,2,...,n$, "linear regression" is a method for determining a relationship $y = f(x)$ which

a. sum of the errors $\sum_{i=1}^{n}[y_i - f(x_i)]$

b. maximum error: $\max_i[y_i - f(x_i)]$

c. sum of absolute values of the errors: $\sum_{i=1}^{n}|y_i - f(x_i)|$

d. sum of the squares of the errors: $\sum_{i=1}^{n}[y_i - f(x_i)]^2$

e. None of the above

**Match** each curve on the left with its transformation on the right which might be used to get a fit by linear regression. (Note: in some cases $\alpha=a$, in other cases $\alpha$ may be a transformation of $a$.)

| $Y = ab^x$ | $Y = a e^{bX}$ | $Y = a e^{bX}$ | $Y = aX^b e^{cx}$ | $Y = \frac{X}{aX - b}$ | $Y = \frac{1}{a + be^{-X}}$ | $Y = a + b \ln X$ |
| 11. $\frac{1}{Y} = \alpha - \beta \frac{1}{X}$ | 12. $\ln Y = \alpha + \beta \ln X + \delta X$ | 13. $\ln Y = \alpha + \beta \ln X$ | 14. $\frac{1}{Y} = \alpha + \beta e^{-X}$ | 15. $\ln Y = \alpha + \beta X$ | 16. $\ln Y = \alpha + \beta \frac{1}{X}$ | 17. None of the above |