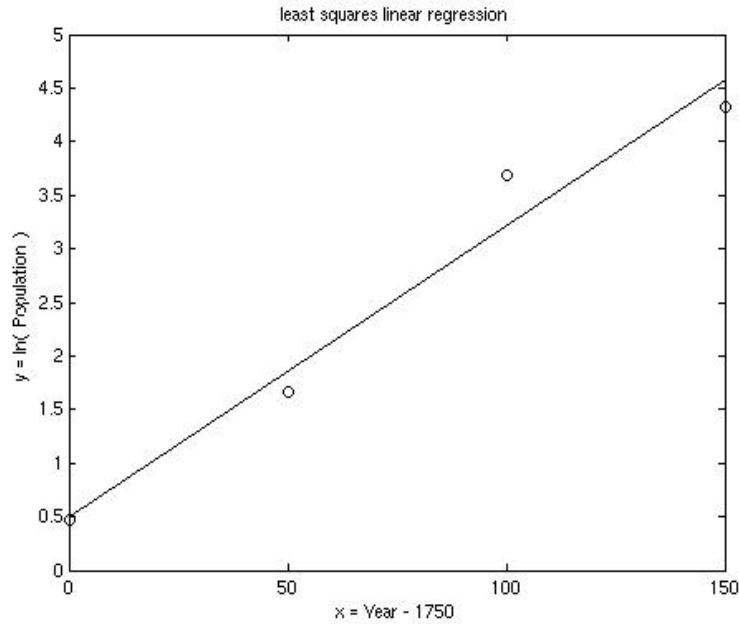Equations were calculated using least squares linear regression in Matlab.
Your answers may vary if you used a freehand regression line or a different program for calculating the least squares regression line.
All graphs were created in Matlab.

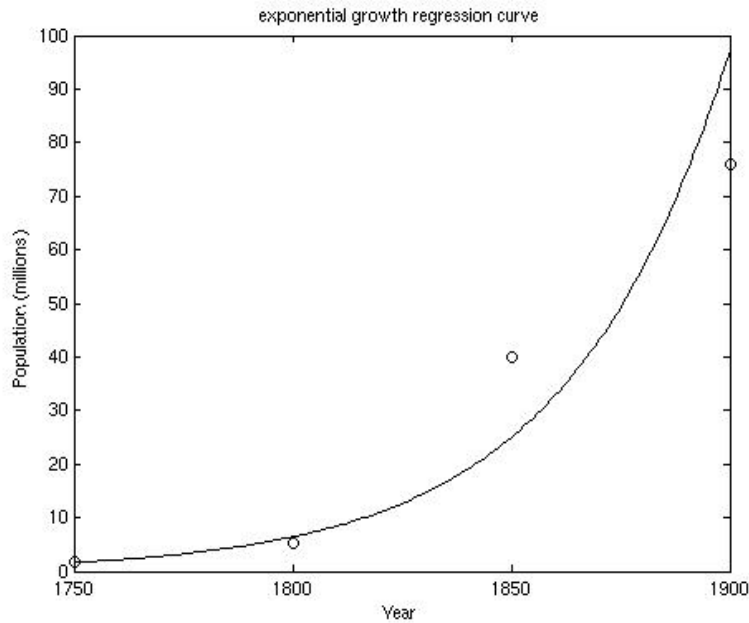25.   least squares regression line: $\boxed{y = 0.0272x + 0.4991}$

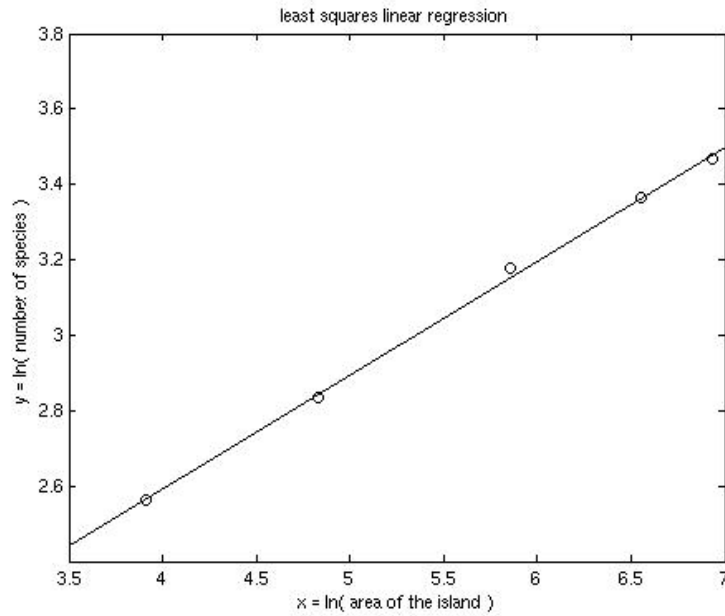least squares linear regression

$\boxed{r = 0.9831}$

$\ln N = 0.0272t + 0.4991$

$e^{\ln N} = e^{0.0272t + 0.4991} = e^{0.0272t}e^{0.4991} = e^{0.0272t} \cdot 1.6472$

$\boxed{N(t) = 1.6472 \cdot e^{0.0272t}}$

exponential growth regression curve

26.   least squares regression line: $\boxed{y = 0.3025\,x + 1.381}$

least squares linear regression

$\boxed{r = 0.9992}$

$$\ln S = 0.3025 \cdot \ln A + 1.381 = \ln\left(A^{0.3025}\right) + 1.381$$

$$e^{\ln S} = e^{\ln\left(A^{0.3025}\right) + 1.381} = e^{\ln\left(A^{0.3025}\right)}e^{1.381} = A^{0.3025} \cdot 3.9874$$

$$\boxed{S = 3.9874 \cdot A^{0.3025}}$$

Area-Species regression curve
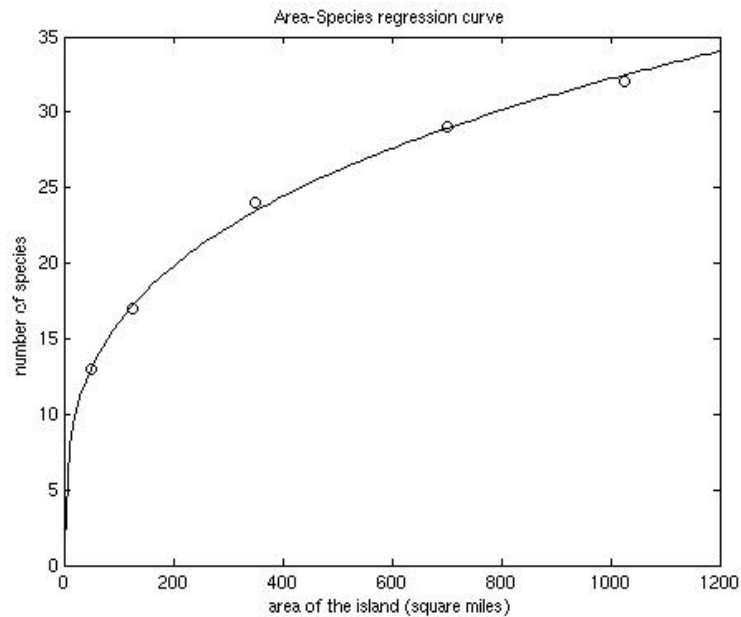
27.   least squares regression line: $\boxed{y = 1.5445x - 4.5528}$

least squares linear regression
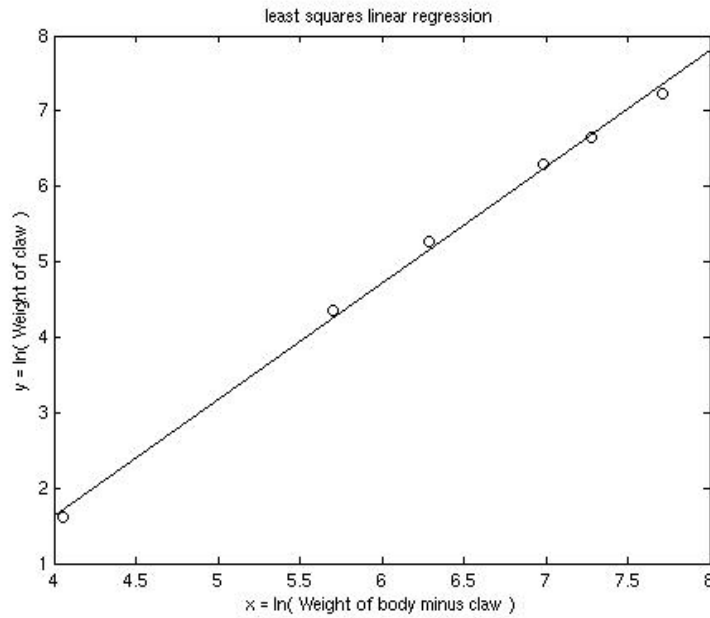
$\boxed{r = 0.9986}$

$$\ln C = 1.5445 \cdot \ln B - 4.5528 = \ln\left(B^{1.5445}\right) - 4.5528$$

$$e^{\ln C} = e^{\ln\left(B^{1.5445}\right) - 4.5528} = e^{\ln\left(B^{1.5445}\right)} e^{-4.5528} = B^{1.5445} \cdot 0.0105$$

$$\boxed{C = 0.0105 \cdot B^{1.5445}}$$

allometric regression curve
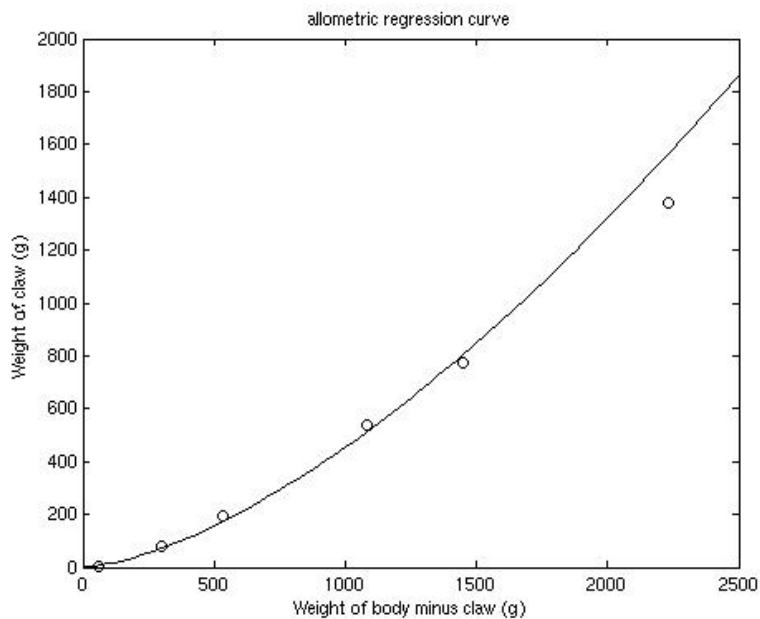
28.   least squares regression line: $\boxed{y = -0.0853x + 2.1577}$

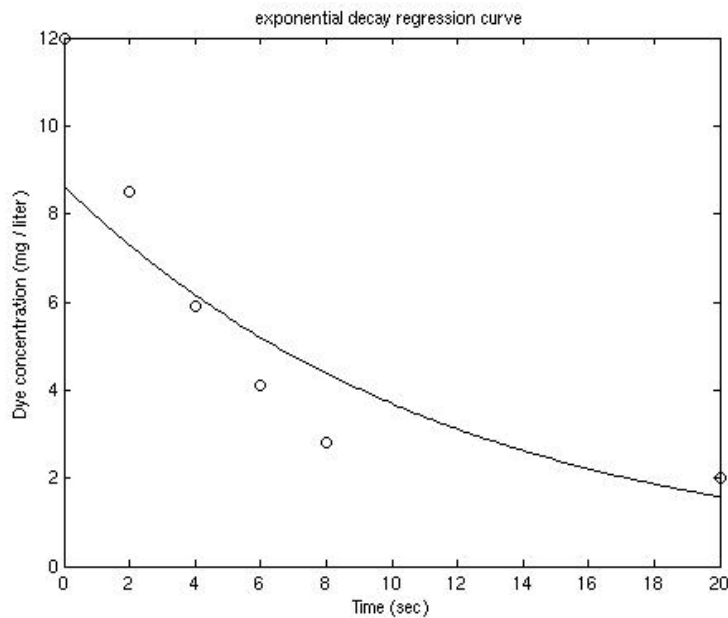least squares linear regression
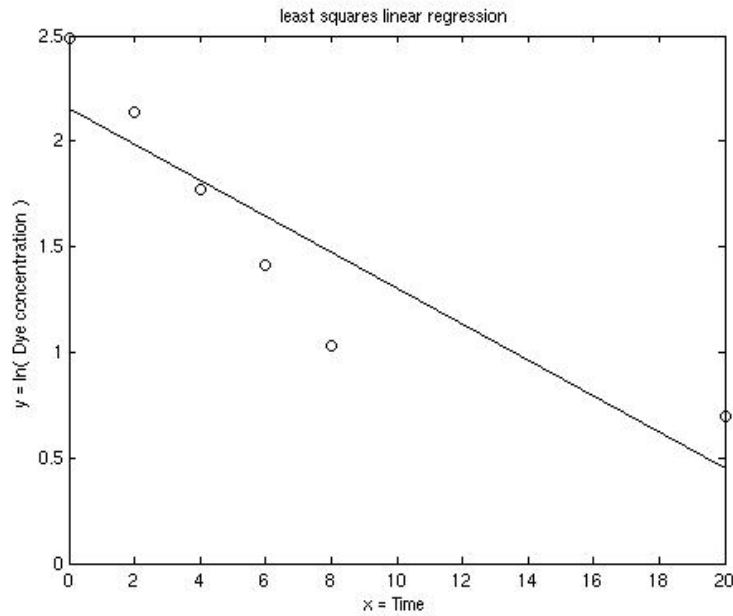
$\boxed{r = -0.8977}$

$\ln C = -0.0853t + 2.1577$

$e^{\ln C} = e^{-0.0853t + 2.1577} = e^{-0.0853t} e^{2.1577} = e^{-0.0853t} \cdot 8.6511$

$\boxed{C(t) = 8.6511 \cdot e^{-0.0853t}}$

exponential decay regression curve

NOTE: The point $(t, C) = (20, 2.0)$ appears to be an outlier because in the semi-log plot at the top, the first 5 points appear to fall on a straight line. On the next page, I remove the outlier and fit an exponential decay function to only the first 5 points.

28.   calculated without the last point: $(t, C) = (20, 2.0)$

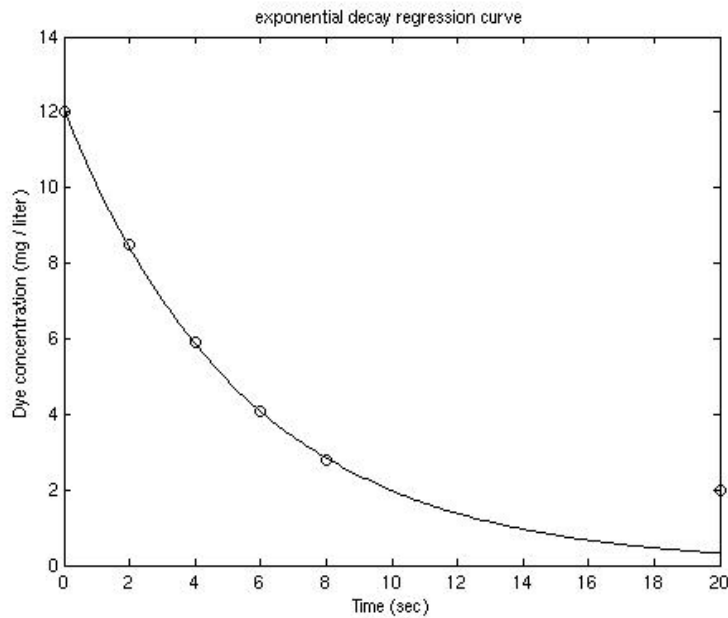least squares regression line: $\boxed{y = -0.1820x + 2.4960}$
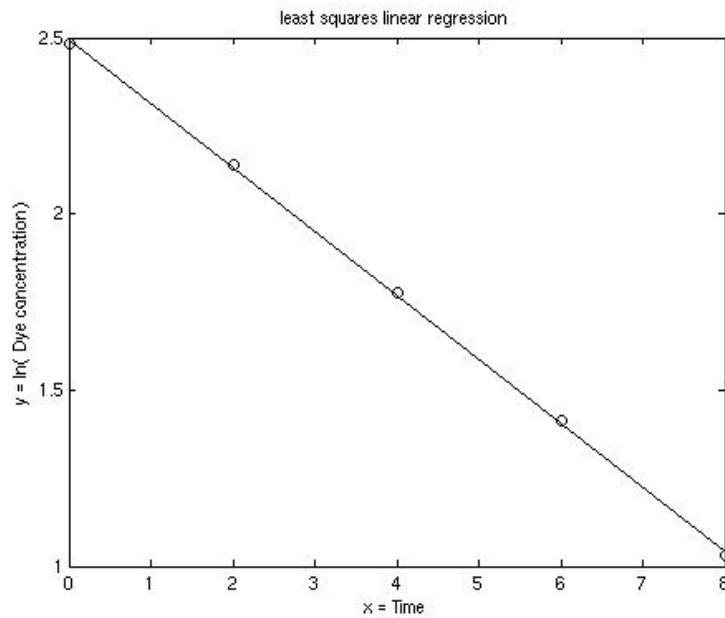
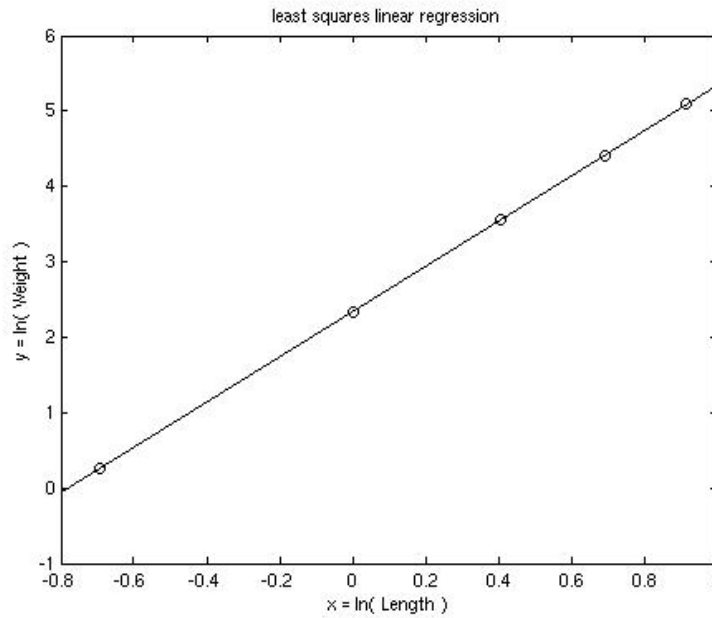$\boxed{r = -0.9999}$

$\ln C = -0.1820t + 2.4960$

$e^{\ln C} = e^{-0.1820t + 2.4960} = e^{-0.1820t}e^{2.4960} = e^{-0.1820t} \cdot 12.1343$

$\boxed{C(t) = 12.1343 \cdot e^{-0.1820t}}$

NOTE: This appears to be a much better "fit" than the previous page.

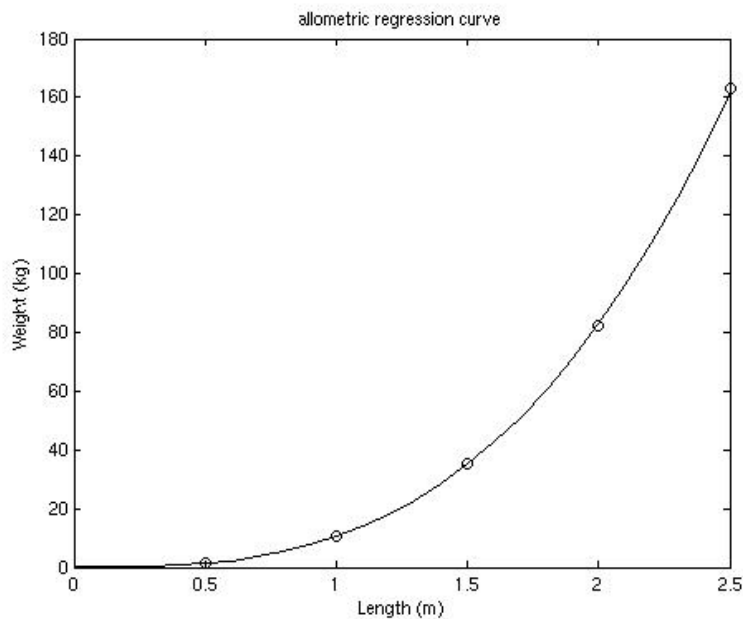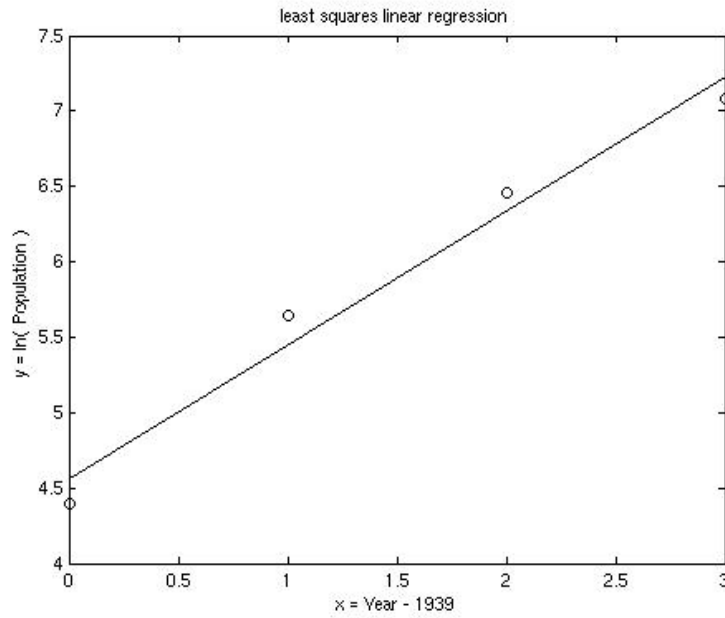29.   least squares regression line: $\boxed{y = 2.9971x + 2.3397}$

least squares linear regression

$\boxed{r = 1.000}$

$$\ln W = 2.9971 \cdot \ln L + 2.3397 = \ln\left(L^{2.9971}\right) + 2.3397$$

$$e^{\ln W} = e^{\ln\left(L^{2.9971}\right)+2.3397} = e^{\ln\left(L^{2.9971}\right)}e^{2.3397} = L^{2.9971} \cdot 10.3781$$

$$\boxed{W = 10.3781 \cdot L^{2.9971}}$$

allometric regression curve

30.   least squares regression line: $\boxed{y = 0.8893x + 4.5622}$

least squares linear regression

$\boxed{r = 0.9875}$

$\ln N = 0.8893t + 4.5622$

$e^{\ln N} = e^{0.8893t + 4.5622} = e^{0.8893t} e^{4.5622} = e^{0.8893t} \cdot 95.7909$

$\boxed{N(t) = 95.7909 \cdot e^{0.8893t}}$

exponential growth regression curve