Study Guide Key

1. a) $y = 0.0009319x + 2.964$

b) slope: The "lean" increases by 0.0009 meters every year.

yint: The lean was 2.964 m in 1975.

Xint: The year when the lean was 0.

c. $x = 23 \Rightarrow 2.9938$ m

2. $y = -16t^2 + 56t + 72$

b) 121 ft c) $-16t^2 + 56t + 72 = 85$ (graph)

$t = .25$ sec and $t = 3.25$ sec

d) $-16t^2 + 56t + 72 = 0$

$t = 4.5$ sec

3. omit

4. (100, 2200) (300, 4800)

$y = 13x + 900$

slope: The cost increases by $13 per chair manufactured.

yint: The cost is $900 when produce 0 chairs

5. a) $y = 13.66(1.1056)^x$

b) "a": In 1980, US movie earnings were $13.66 billion.

"b": US movie earnings are increasing by 10.56% each year.

c) $x = 28 \Rightarrow 13.66(1.1056)^{28} = \$227.218$ billion

d) $100 = 13.66(1.1056)^x \Rightarrow x = 19.83$ yrs since 1980 $\Rightarrow$ 1999

e) Interpolation $\Rightarrow$ Predict earnings in 1986.

Extrapolation $\Rightarrow$ Predict earnings in 2000.

6. $C = 7(2500) + 17500 \Rightarrow \$35000$

b) slope $= 7 \Rightarrow$ The cost increases by \$7 per blender.

c) x-intercept: $0 = 7x + 17500$

$-17500 = 7x$

$-2500 = x$

blenders for cost to $= 0$.

y-int: \$17500 $\Rightarrow$ costs \$17500 to make 0 blenders.

8. Correlation coefficient (r) tells you how good the fit of your equation is to your data. If very close to 1 or -1, than the data is very close to the curve.