Week in Review # 1

1. $m = \frac{10--2}{2-5} = \frac{12}{-3} = -4$

   $y - 10 = -4(x - 2)$ or $y = -4x + 2$

2. points are $(0, 350000)$ and $(8, 145000)$

   (a) $m = \frac{350000-145000}{0-8} = -25,625$
   answer: rate of depreciation is \$25,625 per year.

   (b) $y - 350000 = -25625(x - 0)$ or
   $y = -25625x + 350000$

   (c) \$273,125

   (d) $54000 = -25625x + 350000$
   Answer: $x = 11.5512$ years

3. $C = 10x + 50000$
   $R = 26x$
   $P = 26x - (10x + 50000) = 16x - 50000$

4. $C = Ax + 264$, where A is cost per item.
   $344 = A(20) + 264$
   A = \$4

   $R = sx$, where s is selling price per item.
   $P = R - C = sx - (4x + 264)$
   $136 = s(50) - (4 * 50 + 264)$
   s=\$12

   Answers:$C = 4x + 264$
   $R = 12x$

5. $80x = 30x + 425$
   $x = 8.5$

   Answer: 8,500 shells

6. points $(3000, 10)$ and $(8000, 5)$

   (a) $m = \frac{10-5}{3000-8000} = -0.001$
   answer: $p = -0.001x + 13$

   (b) solve where supply and demand are equal.
   $-0.001x + 13 = 0.004x + 5$
   $x = 1600$
   $p = -0.001(16000) + 13 = 11.40$
   Answer: $(1600, 11.40)$

7. (a) points $(5000, 250)$ and $(8000, 200)$
   $m = \frac{250-200}{5000-8000} = \frac{-1}{60}$
   $p - 250 = \frac{-1}{60}(x - 5000)$
   $p = \frac{-1}{60}x + \frac{1000}{3}$
   $60p = -x + 20000$

   (b) points $(0, 100)$ and $(3000, 175)$
   $m = \frac{175-100}{3000-0} = \frac{1}{40}$
   $p - 100 = \frac{1}{40}(x - 0)$
   $p = \frac{1}{40}x + 100$
   $40p = x + 4000$

   (c) solve for the intersection of
   $60p = -x + 20000$ and $40p = x + 4000$
   add the equations together and you get: $100p = 240000$
   Answer: p= \$240.

   (d) $40 * 240 = x + 4000$
   Answer: $x = 5600$ rackets

8. Do a time shift on the data. Let 1975 correspond to zero.

   Answer: $y = -0.3046x + 230.0354$

9. (a) $y = 8.5421x - 401.2325$

   (b) $y = 8.5421(67) - 401.2325$
   $y = 171.0882$ lbs

   (c) $235 = 8.5421x - 401.2325$
   $x = 74.4820$ inches