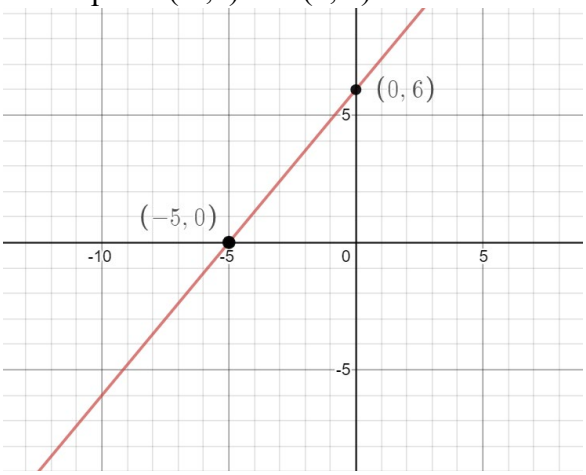
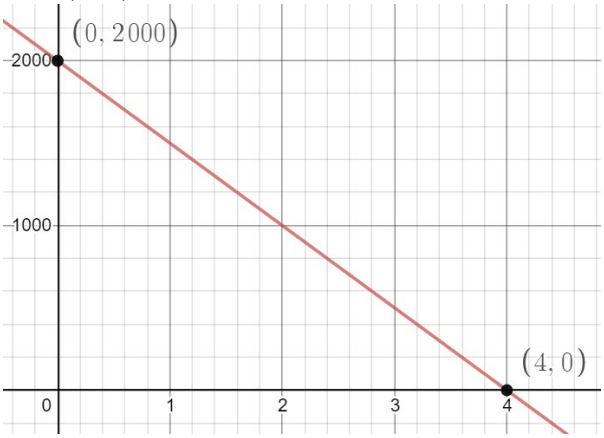
Chapter 4 Solutions

Section 4.1

1) $x = 6$
2) $a = \dfrac{7b + 42}{3}$
3) Intercepts at (-5,0) and (0, 6)



4) The y intercept is at (0, 2000) and says that there is 2000 gallons initially. The x intercept is at (4, 0) and means that it takes 4 hours for the pool to have nothing in it.



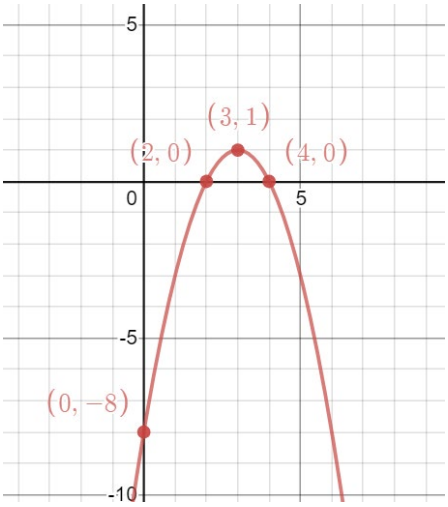
Section 4.2

1) $y = -5x + 6$
2) The model is $y = 6546.2x + 32731$ where x is the number of years after 2016 and y is the average student loan debt per borrower. The debt reaches $50,000 in the year 2018.
3) $y = -\frac{8}{9}x - \frac{15}{9}$

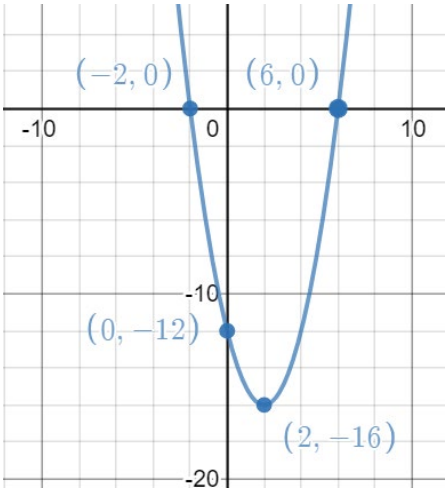
4) The model is $y = \frac{178}{7}x + 117$ where x is the number of years after 2010 and y is the number of computer programming jobs in thousands. The number of jobs reaches 500,000 in 2025.

Section 4.3

1) $x = -4$
2) $x = -\frac{3}{2}, \frac{5}{3}$
3)



4)



5) Peak sales are 14 million on Week 2
6) 14 days

Section 4.4

1) a. linear, b. quadratic, c. exponential
2) $F = 127(1-.001)^t$. At $t = 15$, $F \approx 125.1$ million.
3) $F = 228.88(1+0.6)^t$ means the initial population is about 229.
4) Approximately 8.58%
5) Approximately 39.5 years
6) In approximately 58.1 years in the year 2073