Homework #3Answers MATH 131

1. Either compare the present values of both options or the future values of both options. You only have to do one of these methods.

   Method 1: Present value of the options

   contract: \$250.

   payments: $40e^{-0.07*1} + 90e^{-0.07*2} + 150e^{-0.07*3} = 237.13$

   since payment method is less, this is the best choice.

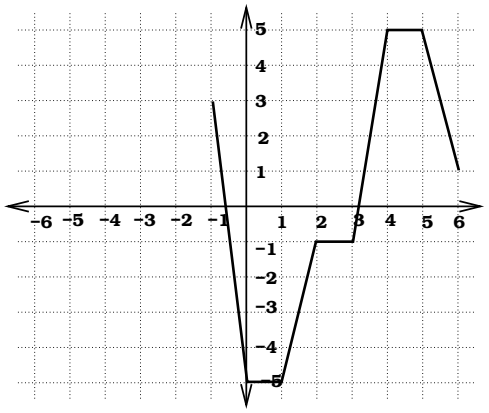
   Method 2: Future value of the options

   contract: $250e^{0.07*3} = 308.42$

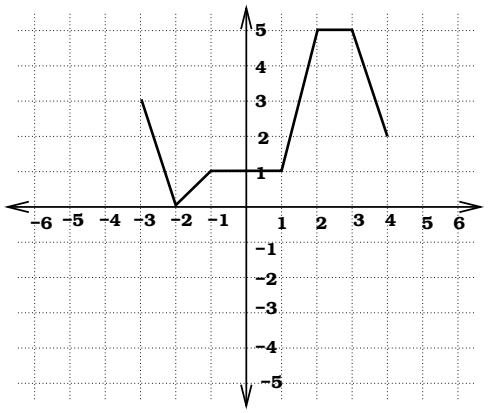
   payments: $40e^{0.07*2} + 90e^{0.07*1} + 150 = 292.54$

   since payment method is less, this is the best choice.

2. (a) $2f(x-2)+1$



   (b) $-g(x)+3$



3. (a) $f(g(2)) = f(-2) = -3$
   (b) $g(f(0)) = g(-1) = 2$
   (c) $g(g(2)) = g(-2) = 3$

4. formula for the mold population at time x.
   $P = 2e^{0.037x} + 8e^{0.257x}$

   (a) solve $80 = 2e^{0.037x} + 8e^{0.257x}$ for x using the calculator.
   Answer: 72.1658 days

   (b) At this time there are 51.11625cm^2 of colony B.

   compute $\frac{51.11625}{80} * 100$

   Answer: 63.8953%

5. $P = k\sqrt{L}$

   (a) k = 1.1108219

   (b) 0.8104 feet

6. $G = \frac{k}{FS}$

   (a) k = 12000

   (b) $G = \frac{12000}{40*6} = 50$ grasshoppers