30 May 2018 Name: .

Do Now: Interest rate calculations

1. Given a loan or investment there are certain values to substitute into one of three formulas. Assume

   Principal amount invested, $P_0 = \$1,000$

   Interest rate, $r = 5\% = 0.05$

   Time, $t = 5$ years

   Compounding periods per year, $n = 12$

   Identify and label the three interest rate formulas: simple interest, compound interest, & continuous interest.

   (a) $P(t) = P_0(1 + \frac{r}{n})^{nt}$

   (b) $P(t) = P_0 e^{rt}$

   (c) $P(t) = P_0(1 + r)^t$

2. How much will the investment be worth using *simple interest*?

3. How much will the investment be worth using *compound interest*?

4. How much will the investment be worth using *continuous interest*?

Do Now: Interest rate calculations

5. Seth's parents gave him \$5000 to invest for his 16th birthday. He is considering two investment options. Option A will pay him 4.5% interest compounded annually. Option B will pay him 4.6% compounded quarterly.

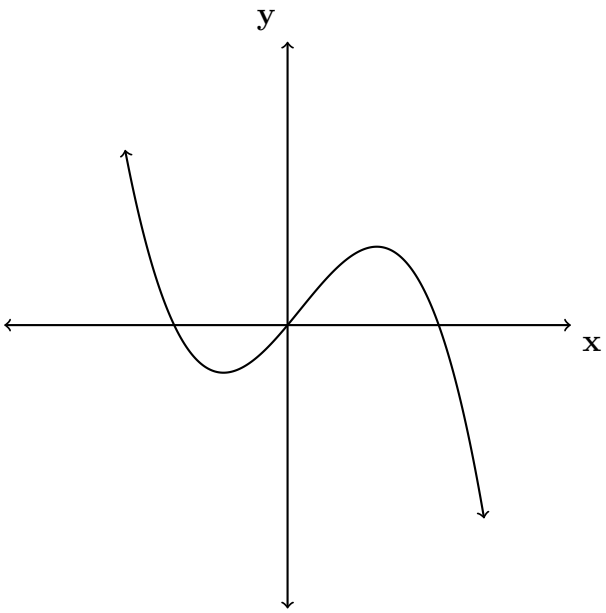
   Write a function of option A and option B that calculates the value of each account after n years.

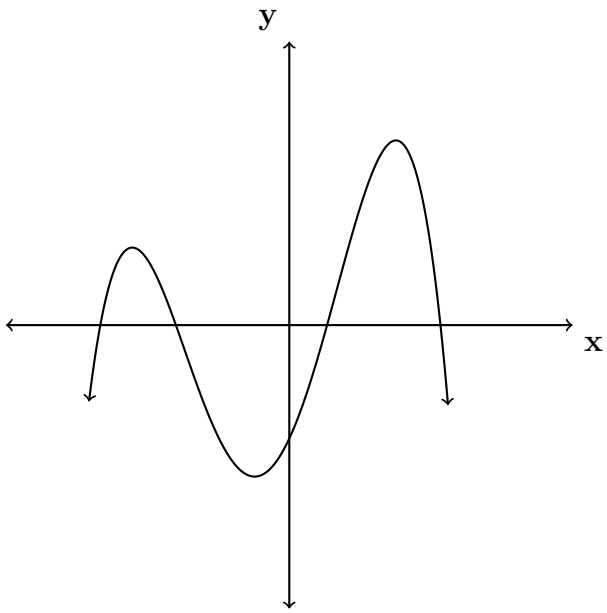
   Seth plans to use the money after he graduates from college in 6 years. Determine how much more money option B will earn than option A to the *nearest cent*.

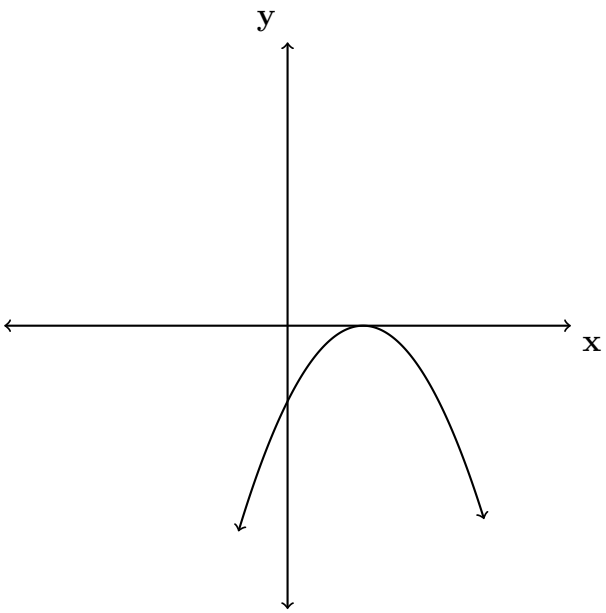
   Algebraically determine, to the nearest tenth of a year, how long it would take for option B to double Seth's initial investment.

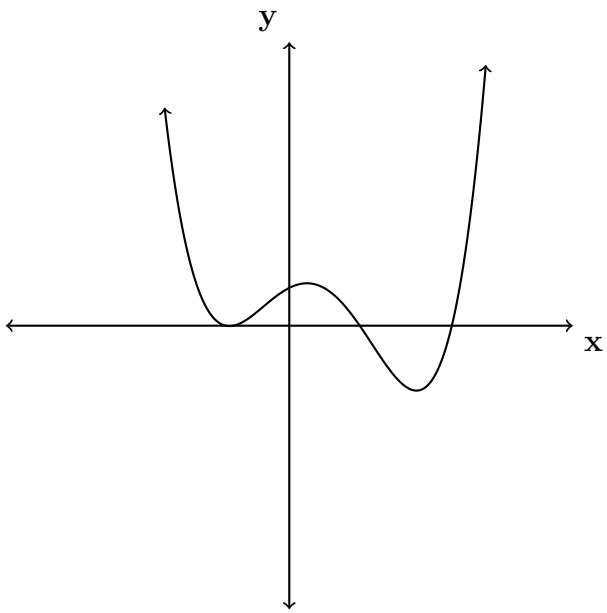
Do Now: Interest rate calculations

6. For each polynomial graph, state
   (a) its degree,
   (b) how many distinct zeros it has, and
   (c) the sign of its leading coefficient.









Do Now: Interest rate calculations

7. Solve the equation $\sqrt{2x+2}+x=3$ algebraically, and justify the solution set.

8. Solve the equation $\sqrt{2x-7}+x=5$ algebraically, and justify the solution set.

9. The speed of a tidal wave, s, in hundreds of miles per hour, can be modeled by the equation $s=\sqrt{t}-2t+6$, where t represents the time from its origin in hours. Algebraically determine the time when $s=0$.