

Questions 1 through 4 refer to the following example: A car dealership used to sell 2 cars per week ($P_0 = 2$). But then a new manager took over and introduced a miraculous sales promotion system that caused weekly sales figures to grow linearly. During the first week of the new system, the dealership sold 6 cars ($P_1 = 6$). The second week the dealership sold 10 cars ($P_2 = 10$).

1. How many cars were sold in the third week?
2. How many cars were sold in the 20th week?
3. If the manager gets \$100 bonus for every car sold, how much total bonus money did the manager make in the first four weeks? How about in the first 20 weeks? (Careful: P_0 does not get included in this sum.)
4. If P_N denotes the number of cars sold in the N th week then the explicit formula for P_N is _____ and the recursive formula for P_N is _____.
5. $\underbrace{5 + 8 + 11 + 14 + \cdots + 299 + 302}_{100 \text{ terms}} =$
6. $\underbrace{2 + 12 + 22 + 32 + \cdots}_{151 \text{ terms}} =$
7. $7 + 10 + 13 + \cdots + 172 =$
8. A bank offers a 6% annual interest rate compounded monthly. The periodic interest is _____.
9. A bank offers a 6% annual interest rate compounded monthly. The annual yield is approximately _____.
10. How much does \$543 grow to in four years if left in a savings account that pays 10.5% interest compounded annually?
11. How much does \$823.25 grow to in five years if left in a savings account that pays 12% annual interest compounded monthly?
12. On January 1 you invest \$500 for one year and leave all interest to accumulate. On April 1, \$5 is credited to your account; on July 1, \$10 is credited to your account; on October 1, \$15 is credited to your account; and on December 1, \$20 is credited to your account. How much money have you made? What is the annual yield on your investment?