Review

<mark>MCR</mark>   used 2013 version

1. Expand

$$(x-4)^{\pm}$$

2. How long will it take $4,000 to grow to $9,000 if it is invested at 7% compounded monthly?

3. Recently, Guaranty Income Life offered an annuity that pays 6.65% compounded monthly. If $500 is deposited into this annuity every month, how much is in the account after 10 years? How much of this is interest?

4. A loan of $4,000 was repaid at the end of 10 months with a check for $4,270. What annual rate of interest was charged?

5. Sharon has found the perfect car for her family (anew mini-van) at a price of $24,500. She will receive a $3500 credit toward the purchase by trading in her old Gremlin, and will finance the balance at an annual rate of 4.8% compounded monthly.
   a) How much are her payments if she pays monthly for 5 years?
   b) How much interest did she pay?

6. For the geometric sequence with

   $$t_2 = 6$$

   and

   $$t_5 = \frac{3}{4}$$

   determine
   a. the general term (explicit) formula for tn (use fractions)
   b. the sum of first seven terms (use fractions)

7. An auditorium contains 10 seats in the first row, 12 seats in the second, 14 in the third, and so on.
   a. How many seats are in the back row if there are 50 rows in the auditorium?
   b. How many total seats are in the auditorium?
   c. What is the recursive formula for the number of seats in row n?

8. Find the first six terms of a sequence defined by

   $$t_1 = -1$$

   $$t_n = \begin{cases} -2t_{n-1} & \text{if } t_{n-1} < 0 \\ (t_{n-1} - 3) & \text{if } t_{n-1} > 0 \end{cases}$$

9. AP

   Find the sum: $\displaystyle\sum_{k=253}^{571} \left(\frac{1}{3}\right)$

10.

Record in Sigma notation:

a) 2.1 + 2.01 + 2.001 + 2.0001 + ... + 2.000000001

b) $\sqrt{3} + 2\sqrt{5} + 3\sqrt{7} + 4\sqrt{9} + 5\sqrt{11} + ...$

11.

Find the explicit equation of the following pattern:

8	16	0	−64	−200	−432	−784

12.

Evaluate the sum in terms of n

$$\sum_{i=1}^{n} (3 + 2i)^2$$

13

How many years will it take for an initial investment of $25,000 to grow to $80,000. Assume the interest rate of interest of 6% compounded continuously.