1. Find the 8th term of the sequence.

$$\left\{6+ \frac{1}{n}\right\}$$

2. Find the third term of the recursively defined infinite sequence.

a1 = 3, ak+1 = 4ak - 5

3. Find the third term of the recursively defined infinite sequence.

a1 = 3, ak+1 = (ak)k+1

4. Find the sum.

$$\sum\_{k=1}^{10}(2+(-1)^{k})$$

5. Find the fifth term, the tenth term, and the nth term of the arithmetic sequence.

-5, -4.5, -4, -3.5, ...

6. Insert two geometric means between 6 and 384.

7. A rubber ball is dropped from a height of 55 feet. If it rebounds approximately two-thirds the distance after each fall, use an infinite geometric series to approximate the total distance the ball travels.

8. Expand and simplify.

(3x - y)3

9. Suppose five cards are drawn from a deck. Find the probability of obtaining a flush (five cards of the same suit).

10. Find the sum of the arithmetic sequence Sn that satisfies the stated conditions.

a1 = 30, d = -2, n = 28

11. Find the sum.

$$\sum\_{k=1}^{28}\frac{1}{2}k+6$$

12. Find the number.

C(d, d-1)

13. Find the number.

C(7, 7)

14. A single die is tossed. Find the odds that the die is an even number.

15. Two dice are tossed. Find the odds that the sum is 8.