Math 3 Review for Cumulative Exam Chapters 6 and 7

1. Find the product

$$\frac{x^2 - 4x - 5}{x^2 + 6x + 9} \cdot \frac{2x^2 + 6x}{x^2 + 3x + 2}$$

2. Find the quotient

$$\frac{x^2 + 5x - 14}{x + 3} \div \left(x^2 - 4x + 4\right)$$

3. Find the sum

$$\frac{7}{x^2 - 5x - 24} + \frac{3}{x - 8}$$

4. Find the sum

$$\frac{14}{x^2 + 7x - 18} + \frac{6}{x + 9}$$

5. Find the difference

$$\frac{5}{x+1} - \frac{3}{x+2}$$

6. Find the difference

$$\frac{6}{x + 4} - \frac{5x}{x - 3}$$

7. Solve the equation

$$\frac{3}{x} + \frac{5}{2} = \frac{-12}{x}$$

8. Solve the equation

$$\frac{5}{x} + \frac{7}{4} = \frac{9}{x}$$

9. Write a rule for the nth term of the sequence. Then, find the 23rd term

375, 75, 15, 3, …

10. Write a rule for the nth term of the sequence. Then, find the 23rd term

51, 48, 45, 42, …

11. Find the sums

a. $\sum_{k=1}^{6} \left(k^2 - 3\right)$

b. $\sum_{i=1}^{20} (3i + 7)$

c. $\sum_{n=1}^{\infty} 7\left(\frac{1}{4}\right)^{n-1}$

d. $\sum_{k=1}^{10} 4(3)^{k-1}$.