Assignment 5 (1/15)

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Problem 1

Problem 12.1.26.

Problem 2

Problems 12.2.$(2, 6, 10, 12a, 28, 29)$.
You may need to use theorem 12.2.2.

Problem 3

What is the sum of all 3 digit numbers that leave a remainder of 2 when divided by 3?

Problem 4

Three positive numbers form an increasing GP. If the middle term of the GP is doubled, then the new numbers are in an AP. What is the common ratio for the initial GP?

Problem 5

Find

$$\sum_{k=1}^{4n}(-1)^{\frac{k(k+1)}{2}}k^2$$

Problem 6

Consider the following sum

$$\frac{1}{1\cdot 3}+\frac{2}{1\cdot 3\cdot 5}+\frac{3}{1\cdot 3\cdot 5\cdot 7}+\frac{4}{1\cdot 3\cdot 5\cdot 7\cdot 9}+\cdots$$

1. Find s_n.
2. Does the infinite sum converge as a series?