Today’s resource features two questions from the 2020 CEMC Mathematics Contests.

**2020 Canadian Team Mathematics Contest, Team Problem #7**

What is the smallest four-digit positive integer that is divisible by both 5 and 9 and has only even digits?

**2020 Euclid Contest, #4(b)**

A geometric sequence has first term 10 and common ratio $\frac{1}{2}$.
An arithmetic sequence has first term 10 and common difference $d$.
The ratio of the 6th term in the geometric sequence to the 4th term in the geometric sequence equals the ratio of the 6th term in the arithmetic sequence to the 4th term in the arithmetic sequence.
Determine all possible values of $d$.

(An arithmetic sequence is a sequence in which each term after the first is obtained from the previous term by adding a constant, called the common difference. For example, 3, 5, 7, 9 are the first four terms of an arithmetic sequence.
A geometric sequence is a sequence in which each term after the first is obtained from the previous term by multiplying it by a non-zero constant, called the common ratio. For example, 3, 6, 12 is a geometric sequence with three terms.)

More Info:
Check out the CEMC at Home webpage on Thursday, May 21 for solutions to the Contest Day 2 problems.