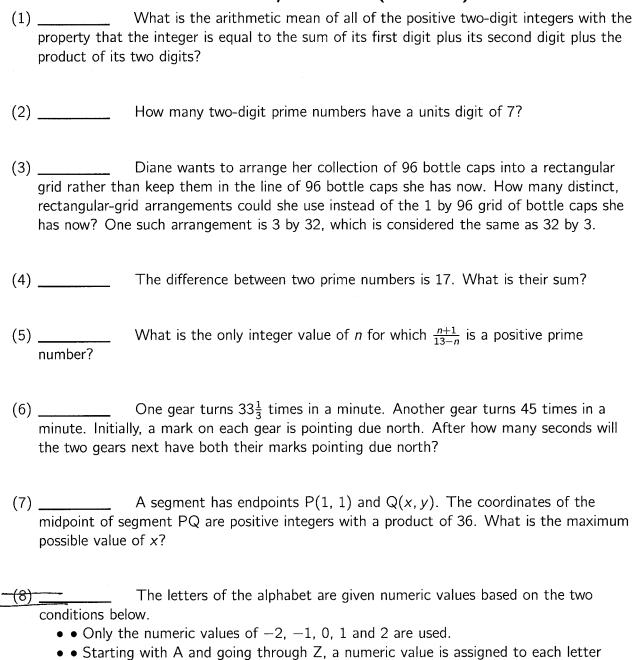
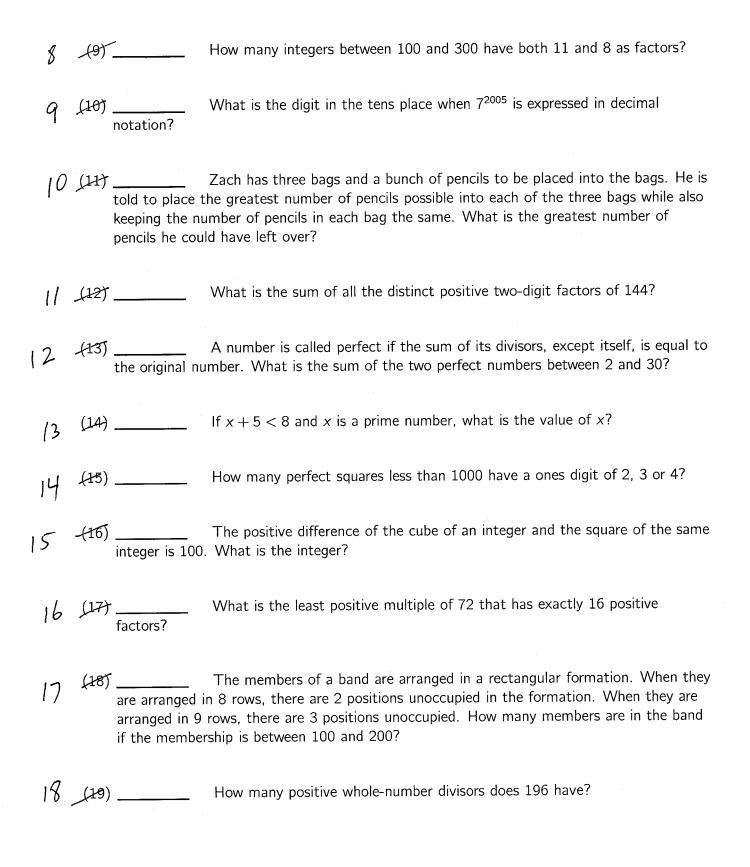
## Mathcounts / AMC 8 (Week 7)



according to the following pattern:  $1, 2, 1, 0, -1, -2, -1, 0, 1, 2, 1, 0, -1, -2, -1, 0, \dots$ 

Two complete cycles of the pattern are shown above. The letter A has a value of 1, B has a value of 2, F has a value of -2 and Z has a value of 2. What is the sum of the numeric values of the letters in the word "numeric"?



We know the following to be true:

• 1. Z and K are integers with 500 < Z < 1000 and K > 1;

• 2.  $Z = K \times K^2$ .

What is the value of K for which Z is a perfect square?

The number 24 can be made by multiplying together four prime numbers: 2,  $\frac{20}{2}$ , 2 and 3. How many primes must be multiplied to make 2400?