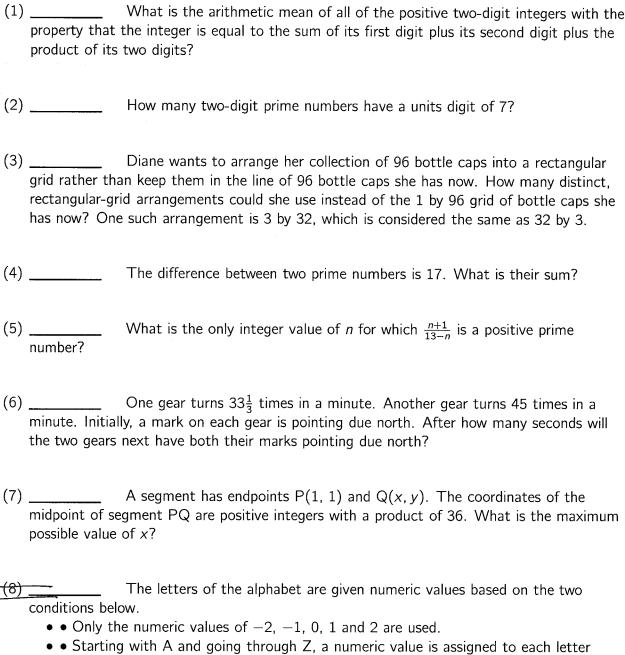
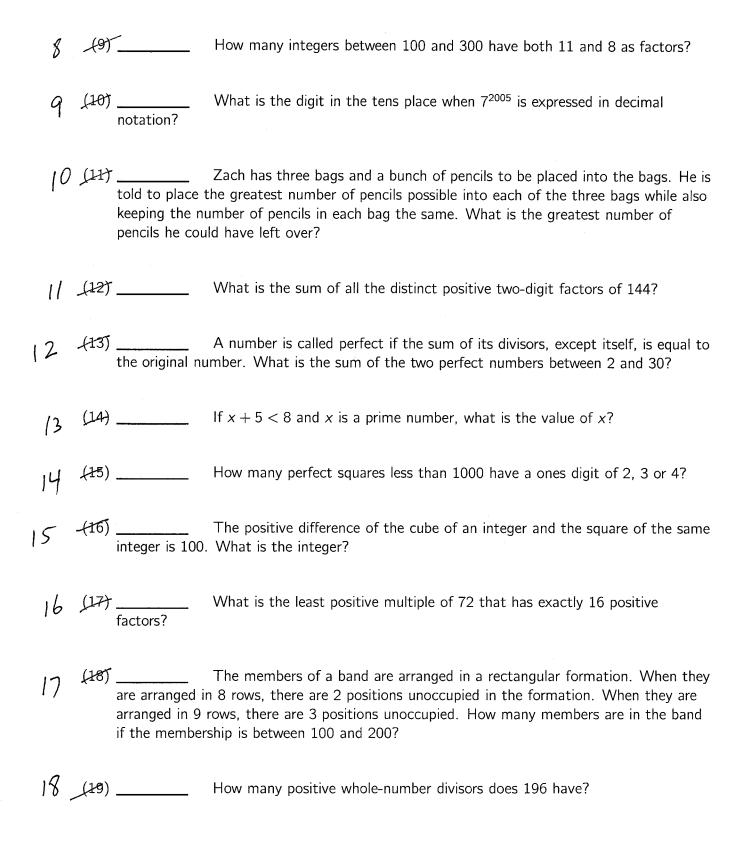
Mathcounts / AMC 8 (Week 7)



 Starting with A and going through Z, a numeric value is assigned to each letter 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, 2, 2 and 3. How many primes must be multiplied to make 2400?

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21	(1)		What is the units digit of 2013 ²⁰¹³ ?
22	(2)	digits is 13. W	The product of the digits of positive integer n is 20, and the sum of the /hat is the smallest possible value of n ?
23	(3)	\$15 each and	Hector spent a total of exactly \$200 on shirts and pants. The shirts cost the pants cost \$22 each. How many shirts did Hector buy?
24	(4)		For what base, b , is $14_b + 24_b = 41_b$ true?
25	(5)	value of \sqrt{M} -	M and N are both perfect squares less than 100. If $M-N=27$, what is the $+\sqrt{N}$?
26	.(6)	divided by 8, t	The integer m is between 30 and 80 and is a multiple of 6. When m is he remainder is 2. Similarly, when m is divided by 5, the remainder is 2. alue of m ?
27	(7)	number of coil	Cammie has some pennies, nickels, dimes, and quarters. What is the least ns that she can use to make 93 cents?
28.	(8)	50?	What is the sum of the units digits of all the multiples of 3 between 0 and