



Math Olympiad and Problem Solving Programs  
E120 - Honors Algebra Problem Solving  
Problem Set 5.1 - Primes

Name:

Date:

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1.  E
2.  A
3.  D
4.  D
5.  E
6.  D
7.  A
8.  E
9.  D
10.  20

First let's look at the prime factorization of 10, which is  $10 = 2 \times 5$ . Notice that 10 has  $(1 + 1) \times (1 + 1) = 2 \times 2 = 4$  positive integer divisors. Since we want the **least positive multiple**, we're going to **multiply** 10 by the **smallest prime factor, 2**, until we have 6 positive integer divisors. The answer then is  $2^2 \times 5 = 20$ , which has  $(2 + 1) \times (1 + 1) = 3 \times 2 = 6$  positive integer divisors.