Name: _____

1. (3) Find gcd(64,24) by prime factorization.

$64 = 2^6$
$24 = 2^3 \times 3$

2. (3) Find gcd(64,24) by the Euclidean Algorithm.

$64 = 24 \times 2 + 16$
$24 = 16 \times 1 + 8$
$16 = 8 \times 2 + 0$
$\gcd(64,24) = 2^3 = 8$

3. (4) Using the Extended Euclidean Algorithm, find numbers A and B so that: 64xA + 24xB = gcd(64,24)

q	64	24	r
*	1	0	64
*	0	1	24
2	1	-2	16
1	-1	3	8
1	-1	3	8
2	3	-8	0

Therefore $64 \times (-1) + 24 \times (-8) = 8 = \gcd(64,24)$