RSA Encryption

$n = p * q$
$\phi(n) = (p-1)(q-1)$
$gcd(\phi(n), e) = 1$ // This is where I should use Euklide Extended Algorithm
$d * e \equiv 1 \, mod \, \phi(n)$

Public key: (e, n)
Private key: (d, n)

Encryption:
$C = M^e \, mod \, n$
Decryption:
$M = C^d \, mod \, n$

a)

$p = 3, q = 11, e = 7, M = 5$

$n = 3 * 11 = 33$
$\phi(n) = 2 * 10 = 20$
$gcd(20, 3) = 1$
$\mathbf{3} * 7 \equiv 1 \, mod \, 20$

Public key: $(7, 33)$
Private key: $(3, 33)$

Encryption:
$C = 5^7 \, mod \, 33 = 14$
Decryption:
$M = 14^3 \, mod \, 33$

b)

$p = 5, q = 11, e = 3, M = 9$

$n = 5 * 11 = 55$
$\phi(n) = 4 * 10 = 40$
$gcd(40, 3) = 1$
$\mathbf{27} * 3 \equiv 1 \, mod \, 40$

Public key: $(3, 55)$
Private key: $(27, 55)$

Encryption:
$C = 9^3 \, mod \, 55 = 14$
Decryption:
$M = 14^{27} \, mod \, 55 = 9$

c)

$p = 7, q = 11, e = 17, M = 8$

$n = 7 * 11 = 77$
$\phi(n) = 6 * 10 = 60$
$gcd(60, 17) = 1$
$\mathbf{68} * 17 \equiv 1 \, mod \, 60$

Public key: $(17, 77)$
Private key: $(68, 77)$

Encryption:
$C = 8^{17} \, mod \, 77 = 32$
Decryption:
$M = 32^{68} \, mod \, 77 = 8$

a)

Euclides Exteded Algorithm in a)

$gcd(20, 3) = 1$

$20 = 3 * 6 + 2$
$3 = 2 * 1 + 1$ // Use this forumla and convert it to $1 = 3 - 2 * 1$

$1 = 3 - 2 * 1$
$1 = 3 - (20 - 3 * 6)$ // Now what? I don't remember from here. The answer is 3, the private key...