P272 13

Let p=3, and 3, 5, 7 are consecutive primes of the form p, p+2, p+4.

P272 21

a) gcd(1, 4)=gcd(3, 4)=1

   So Φ(4)=2.

b) gcd(1,10)=gcd(3, 10)=gcd(7, 10)=gcd(9, 10)=1

   So Φ(10)=4.

c) Because 13 is a prime, so every number less than 13 is relatively prime to 13.

   So Φ(13)=12.

P284 9

We can easily know that gcd(4, 9)=1. From Euclidean algorithm we can know: 9=2·4+1, so (-2)·4+1·9=1.

Then we know that $x \equiv (-2)\cdot 5 \equiv -10 \equiv 8 \pmod{9}$.

So $x \equiv 8 \pmod{9}$.

P285 21

Let $M=2\cdot 3\cdot 5\cdot 11=330$, $M_1=M/2=165$, $M_2=M/3=110$, $M_3=M/5=66$ and $M_4=M/11=30$.

Because $\gcd(165, 2)=\gcd(110, 3)=\gcd(66, 5)=\gcd(30, 11)=1$, from Euclidean algorithm we can know that $1\cdot165\equiv1$ (**mod** 2), $2\cdot110\equiv1$ (**mod** 3), $1\cdot66\equiv1$ (**mod** 5) and $(-4)\cdot30\equiv1$ (**mod** 11).

Let $x \equiv 1\cdot M_1\cdot1 + 2\cdot M_2\cdot2 + 3\cdot M_3\cdot1 + 4\cdot M_4\cdot(-4) \equiv 323$ (**mod** 330).

So $x\equiv323$ (**mod** 330).