Modular Arithmetic 1

1) a) Suppose it's 4PM and someone wants to meet you in 5 hours. When is your meeting time?
   b) Suppose it's 10AM and someone wants to meet you in 5 hours. When is your meeting?
   c) Suppose it's 9PM and you have a meeting in 12 hours. When is your meeting?
   d) Suppose it's 1PM, and you have a meeting in 19hours. What time is your meeting?

2)

   a) 20 minutes after 5:47 is 6:____
   b) 37 minutes after 3:52 is 4:____

3)

   a) $76 \equiv$ ____(mod 12)
   b) $52 \equiv$ ____(mod 12)
   c) $76 \equiv$ ____(mod 60)
   d) $15 \equiv$ ____(mod 7)
   e) $15 \equiv$ ____(mod 3)
   f) $15 \equiv$ ____(mod 11)

4)

   a) What is the last digit of $413 \times 5967 \times 4534$?
   b) What is 7^6 mod 5?
   c) What is 867^5 mod 10?
   d) Is 1111111 a multiple of 3?
   e) What is the remainder of 48574398573002290383907 divided by 9?

5) What can an odd prime number be mod 4?

6) What can a perfect square be mod 4? What about mod 7?