Exercise-set 3.
Solutions

1. b additions, not polynomial

2. $\log_2 b$ additions, polynomial

3. a divisions, not polynomial

4. $\sqrt{n}$ additions and multiplications, not polynomial

5. $\log_2 n$ additions and multiplications, polynomial

6. a) 61;
   b) 512;
   c) 1;
   d) 2;
   e) $x \equiv 60 \pmod{673}$;
   f) $x \equiv 108 \pmod{514}$;
   g) $x \equiv 293 \pmod{352}$.

7. 5.

8. $\text{g.c.d.}(12n+6, 9n+4) = \begin{cases} 1, & \text{if } n \text{ is odd,} \\ 2, & \text{if } n \text{ is even.} \end{cases}$