4.3

2) Does $7 \mid 56$; yes, $56 = 7 \cdot 8$

6) Is 29 a multiple of 3; No $29/3 \neq$ INT

7) Is -3 a factor of 66; yes $-3 \cdot -22 = 66$

24) For all INT a, b, c; if $a \mid b$ and $a \mid c$, then $a \mid (26 - 3c)$ True

Suppose a, b, c are any INT such that $a \mid b$ & $a \mid c$

By def of divisability, we know that $b = am$

And $c = an$ for some INT m & n

$26 - 3c = 2(am) - 3(an) = a(2m - 3n)$

Let $t = 2m - 3n$. Then t is an INT.

37) A) STD Form: $1,176 = 2^3 \cdot 3 \cdot 7^2$

4.4

3) $n = dq + r$ and $0 \leq r < d$

$n = 36$, $d = 40$ $q = 0$ $r = 36$

11) A) DayT = 6 (Saturday) and $n = 15$

If today is Sat, +15 days is 2 weeks = Sat + 1

= Sunday, DayN = 0 DayN = (DayT + N) mod 7

$= (6 + 15) \bmod 7$

$= 21 \bmod 7 = 0$

13) On a monday, a friend will meet you in 30 days

What day is it $30 = 4 \cdot 7 + 2$

2 days after Monday = Wed