PRIME FACTORS DIVISIBILITY

FACT 1:   2 is a factor of all numbers whose last digit is divisible by 2.

These are even numbers ending with 0, 2, 4, 6 or 8.

The last digit of 52 is 2   →   2 is divisible by 2   →   2 is a factor of 52.
The last digit of 83,436 is 6   →   6 is divisible by 2   →   2 is a factor of 83,436.

NOTE: 4 is a factor of a number whose last 2 digits can be divided by 4.
          8 is a factor of a number whose last 3 digits can be divided by 8.

FACT 2:   3 is a factor of a number, the sum of whose digits can be divided by 3.

3 is a factor of all numbers whose digits ultimately add up to 3, 6, or 9, such as the following:

The digits of **897** add up to 24, the digits of 24 then add up to 6
The digits of **78,916,545** add up to 45, the digits of 45 then add up to 9

FACT 3:   5 is a factor of a number whose last digit is 0 or 5.

The last digit of **735** is 5   →   **5** is a factor of **735**
The last digit of **33,330** is 0   →   **5** is a factor of **33,330**

FACT 4:   7 as a factor may be determined by the following procedure.

Subtract the double of the last digit from the number without the last digit. For example, if the number is 231, then subtract double of '1' from '23', or 23 – 2 = 21. This procedure may be repeated several times for a large number. For example:

Consider the number **38073** → **3807 – 6 = 3801**
                                          → **380 – 2 = 378**
                                          → **37 – 16 = 21**

If the number obtained from this procedure is divisible by 7 then the original number is also divisible by 7.

1. **Find the prime factors of the following numbers.**

(a) 45	(f) 252	(k) 756	(p) 6567	(u) 333333
(b) 56	(g) 315	(l) 891	(q) 9768	(v) 405769
(c) 72	(h) 429	(m) 1089	(r) 14157	(w) 537152
(d) 87	(i) 512	(n) 2751	(s) 71996	(x) 5666661
(e) 168	(j) 626	(o) 4620	(t) 89712	(y) 5056506

End of Lesson