Samples **Primes Composite SOLUTIONS**

1. (**1**) $96 = 2 \times 48 = 2 \times 2 \times 24 = 2 \times 2 \times 2 \times 12 = 2 \times 2 \times 2 \times 2 \times 6 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

(**2**) $46 = 2 \times 23$

(**3**) No, the highest common factor of 96 and 46 is 2, so **they are not** relatively prime.

(**4**) $4416 = 96 \times 46 = (2 \times 2 \times 2 \times 2 \times 2 \times 3) \times (2 \times 23) = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 2 \times 23$

2. (**1**) $81 = 3 \times 27 = 3 \times 3 \times 9 = 3 \times 3 \times 3 \times 3$

(**2**) $82 = 2 \times 41$

(**3**) Yes, the highest common factor of 81 and 82 is 1, so **they are** relatively prime.

(**4**) $6642 = 81 \times 82 = (3 \times 3 \times 3 \times 3) \times (2 \times 41) = 3 \times 3 \times 3 \times 3 \times 2 \times 41$

3. (**1**) $10 = 2 \times 5$

(**2**) $80 = 2 \times 40 = 2 \times 2 \times 20 = 2 \times 2 \times 2 \times 10 = 2 \times 2 \times 2 \times 2 \times 5$

(**3**) No, the highest common factor of 10 and 80 is 10, so **they are not** relatively prime.

(**4**) $800 = 10 \times 80 = (2 \times 5) \times (2 \times 2 \times 2 \times 2 \times 5) = 2 \times 5 \times 2 \times 2 \times 2 \times 2 \times 5$