

Math Lab: Manipulatives

Lab Analysis **Solutions**

1. numbers less than 150 that are perfect squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144
2. numbers less than 150 that are perfect cubes: 1, 8, 27, 64, 125
3. On graph paper you can draw squares of each side length from 1 to 12 and then count the total number of squares covering the enclosed area.
4. You could use prime factorization to see if you are able to rearrange the factors into identical groups of two or three. You could also use a calculator to see if you get a whole number when you evaluate the square and cube roots. For example,

Identical Groups of Two (Square Root):

$$196 = 2 \times 2 \times 7 \times 7$$

$$196 = (2 \times 7) \times (2 \times 7)$$

$$196 = 14 \times 14$$

Identical Groups of Three (Cube Root):

$$216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

$$216 = (2 \times 3) \times (2 \times 3) \times (2 \times 3)$$

$$216 = 6 \times 6 \times 6$$