Name: Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Using prime factor decomposition to square root Autumn 1 – Week 1 – Extension 2**

We can use **prime factor decomposition** to calculate the **square root** of large square numbers.

**Example:**

Calculate $\sqrt{441}$

The prime factor decomposition of 441 is 3 × 3 ×7 × 7.

We could write this as (3 × 7) × (3 × 7) or 21 × 21.

 So $\sqrt{441}$ = 21

**Practice:**

Use prime factor decomposition to decide which of these numbers are square numbers. If it is a square number calculate the square root.

|  |  |  |  |
| --- | --- | --- | --- |
| 484 | 1,600 | 256 | 920 |
| 576 | 130 | 800 | 900 |
| 200 | 310 | 2,401 | 1,296 |
| 450 | 2,025 | 525 | 609 |
| 1,125 | 520 | 289 | 4,356 |