

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 $3 \times 3 \times 7 \times 7$.

We could write this as $(3 \times 7) \times (3 \times 7)$ 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