

**Topic:** Prime factorization and product of primes**Question:** What is the prime factorization of 120?**Answer choices:**

A       $2 \cdot 2 \cdot 5$

B       $2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$

C       $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$

D       $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$



**Solution: C**

We need to find the product of prime numbers that make up 120.

$$120$$

$$12 \cdot 10$$

$$6 \cdot 2 \cdot 5 \cdot 2$$

$$3 \cdot 2 \cdot 2 \cdot 5 \cdot 2$$

Now we'll collect the factors in ascending order.

$$2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$$

We can also write it as

$$2^3 \cdot 3 \cdot 5$$



**Topic:** Prime factorization and product of primes

**Question:** What is the prime factorization of 300?

**Answer choices:**

A       $2 \cdot 3 \cdot 3 \cdot 5$

B       $2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$

C       $2 \cdot 2 \cdot 3 \cdot 5$

D       $2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$



**Solution: D**

We need to find the product of prime numbers that make up 300.

$$300$$

$$30 \cdot 10$$

$$6 \cdot 5 \cdot 5 \cdot 2$$

$$3 \cdot 2 \cdot 5 \cdot 5 \cdot 2$$

Now we'll collect the factors in ascending order.

$$2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$$

We can also write it as

$$2^2 \cdot 3 \cdot 5^2$$



**Topic:** Prime factorization and product of primes**Question:** Which factorization is complete?**Answer choices:**

A  $100 = 10^2$

B  $100 = 4 \cdot 25$

C  $100 = 10 \cdot 10$

D  $100 = 2^2 \cdot 5^2$



**Solution: D**

If we want to completely factor 100, the factorization breaks down as

$$100$$

$$50 \cdot 2$$

$$25 \cdot 2 \cdot 2$$

$$5 \cdot 5 \cdot 2 \cdot 2$$

Now we'll collect the factors in ascending order.

$$2 \cdot 2 \cdot 5 \cdot 5$$

We can also write it as

$$2^2 \cdot 5^2$$

