

## 두 원의 위치 관계

(The Positional Relationship of Two Circles)

# The Positional Relationship of Two Circles

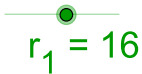
▶ Start

▶ End

# The Positional Relationship of Two Circles

▶ Start

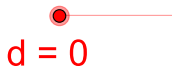
▶ End



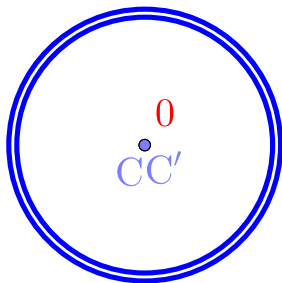
$r_1 = 16$



$r_2 = 17$



$d = 0$

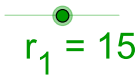


$$16 + 17 = 33 \quad |16 - 17| = 1$$

# The Positional Relationship of Two Circles

▶ Start

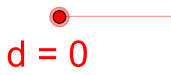
▶ End



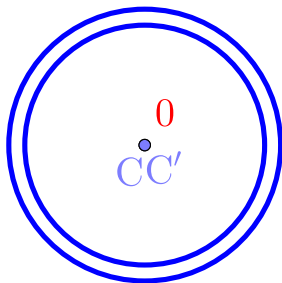
$r_1 = 15$



$r_2 = 17$



$d = 0$




$$15 + 17 = 32 \quad |15 - 17| = 2$$

# The Positional Relationship of Two Circles

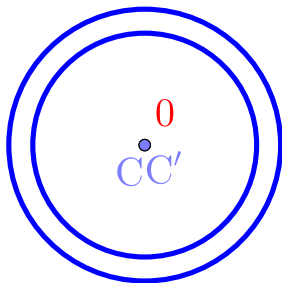
▶ Start

▶ End


$$r_1 = 14$$


$$r_2 = 17$$


$$d = 0$$




$$14 + 17 = 31 \quad |14 - 17| = 3$$


# The Positional Relationship of Two Circles

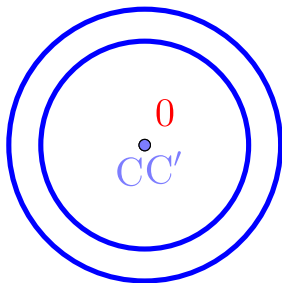
▶ Start

▶ End


$$r_1 = 13$$


$$r_2 = 17$$


$$d = 0$$

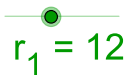


$$13 + 17 = 30 \quad |13 - 17| = 4$$

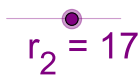
# The Positional Relationship of Two Circles

▶ Start

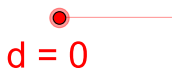
▶ End



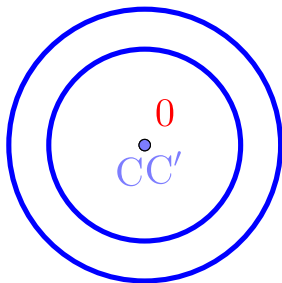
$r_1 = 12$



$r_2 = 17$



$d = 0$



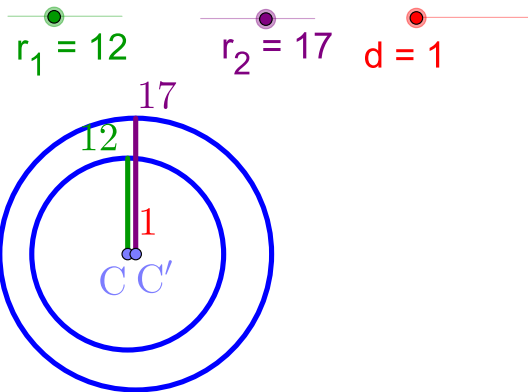
$$12 + 17 = 29$$

$$|12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



$$12 + 17 = 29$$

$$|12 - 17| = 5$$

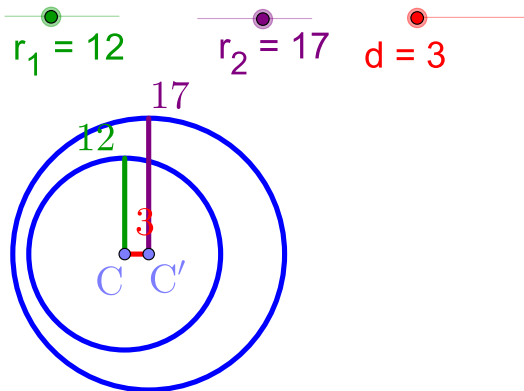




# The Positional Relationship of Two Circles

▶ Start

▶ End

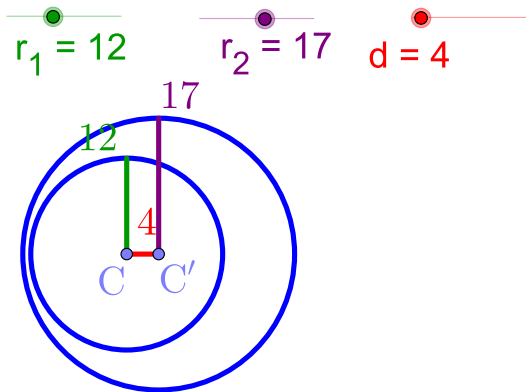


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

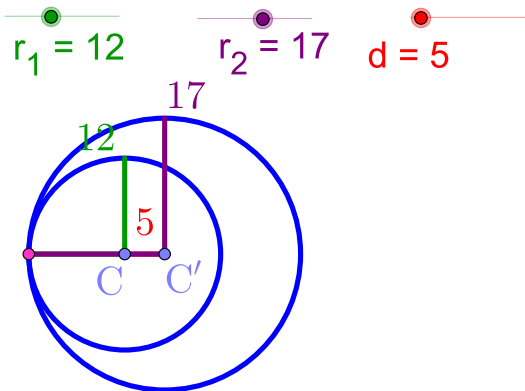


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

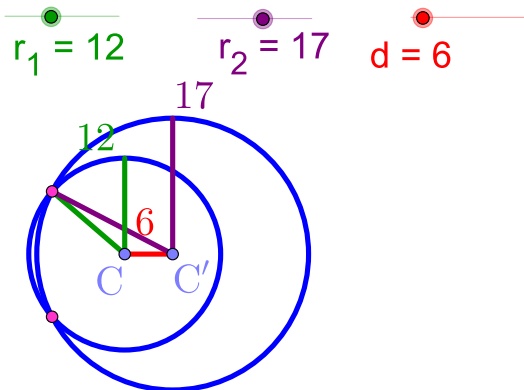


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

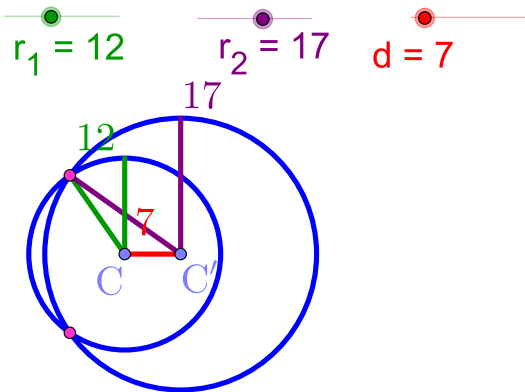


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

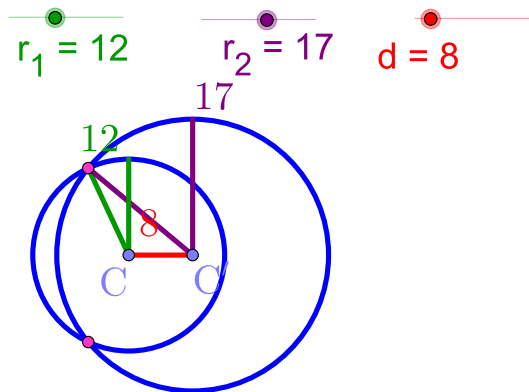
▶ End



$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start ▶ End

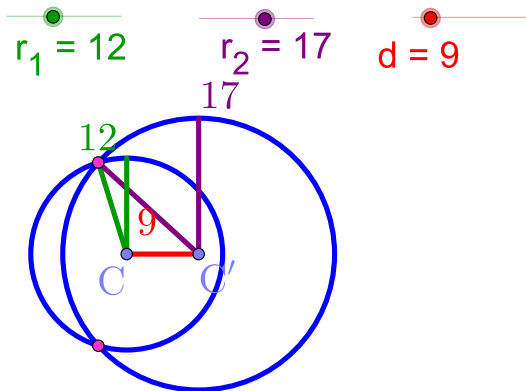


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



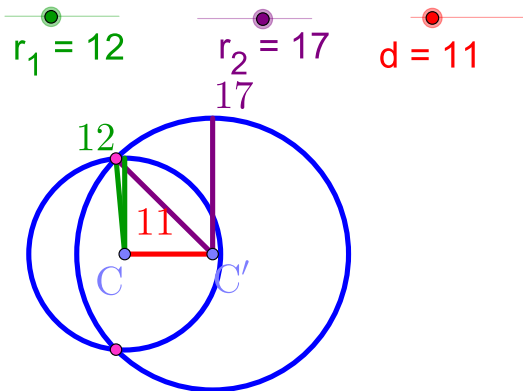




# The Positional Relationship of Two Circles

▶ Start

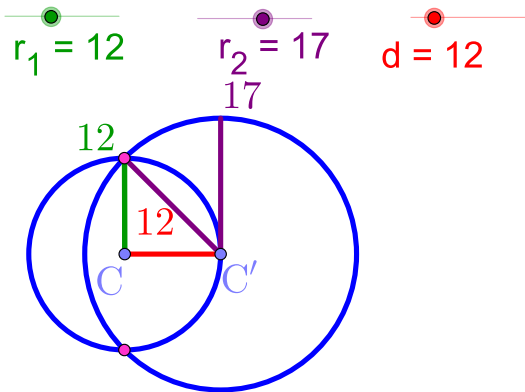
▶ End



# The Positional Relationship of Two Circles

▶ Start

▶ End

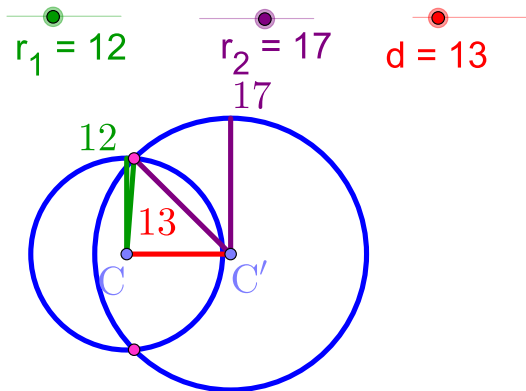


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

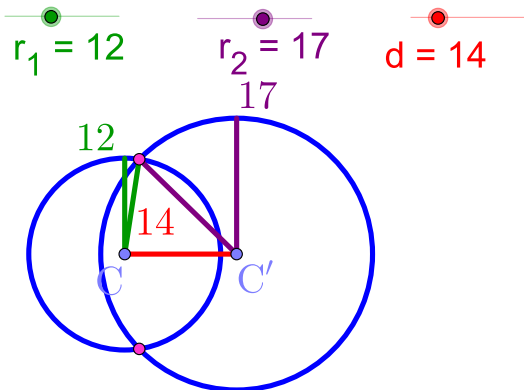


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

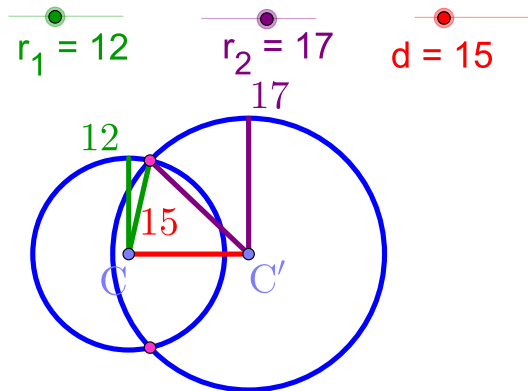


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

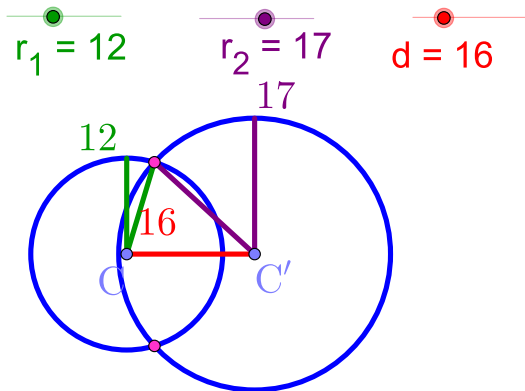


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

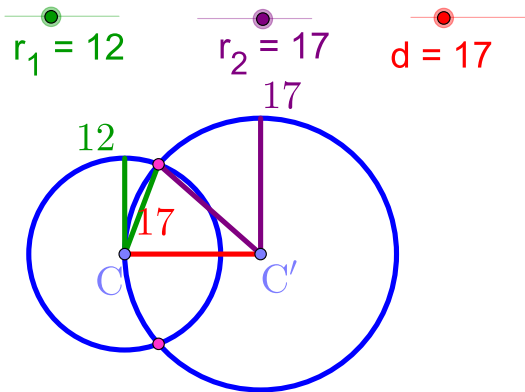


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



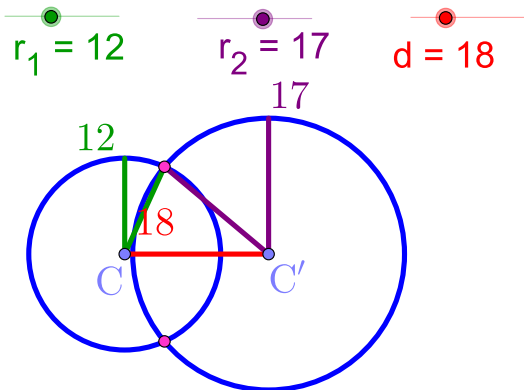
$$12 + 17 = 29 \quad |12 - 17| = 5$$



# The Positional Relationship of Two Circles

▶ Start

▶ End

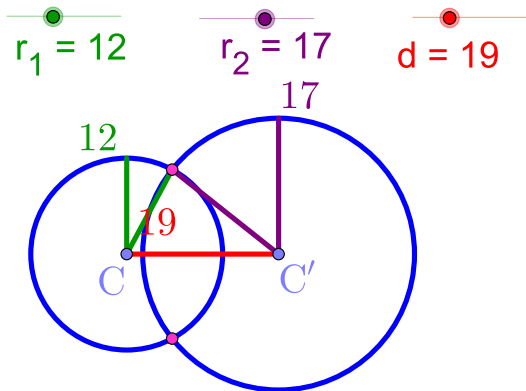


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

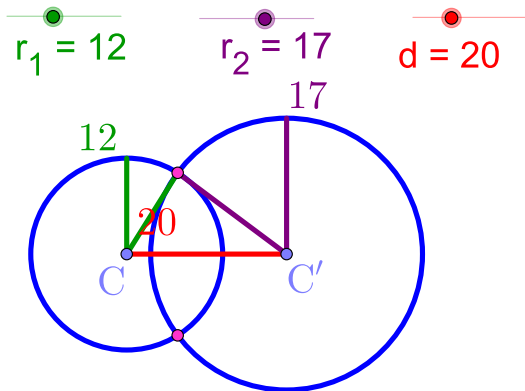


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

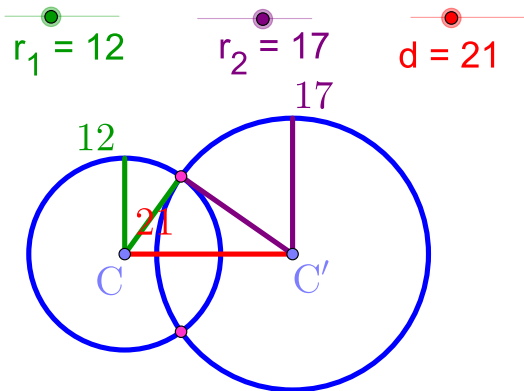


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

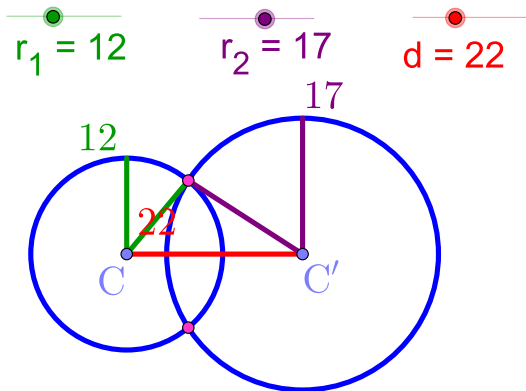


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

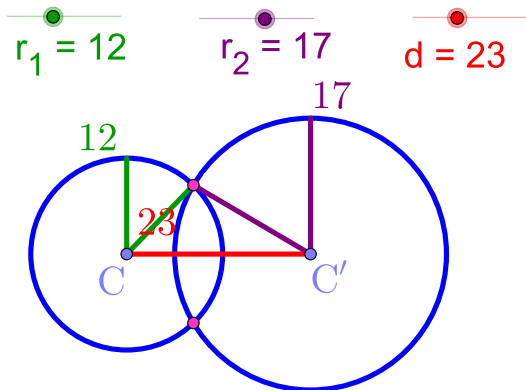


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

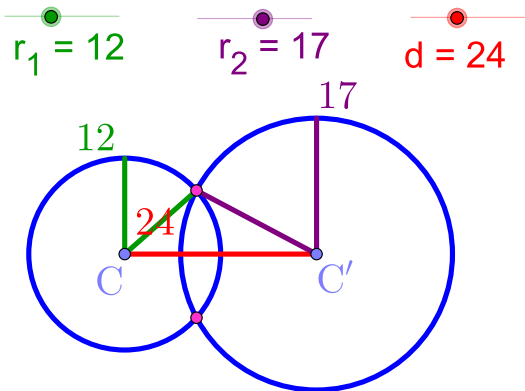


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



$$12 + 17 = 29$$

$$|12 - 17| = 5$$

# The Positional Relationship of Two Circles

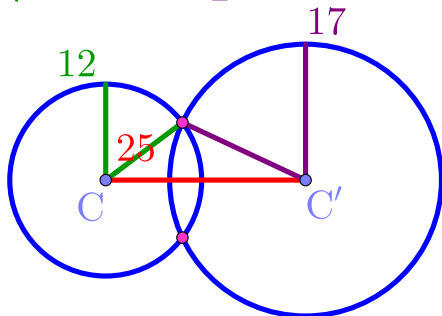
▶ Start

▶ End

$$r_1 = 12$$

$$r_2 = 17$$

$$d = 25$$



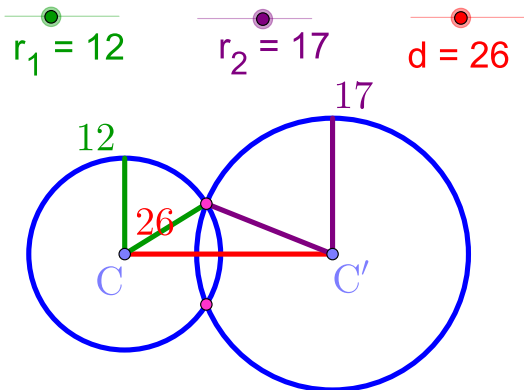
$$12 + 17 = 29 \quad |12 - 17| = 5$$



# The Positional Relationship of Two Circles

▶ Start

▶ End

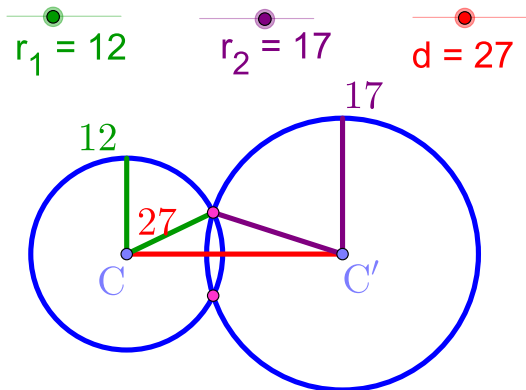


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

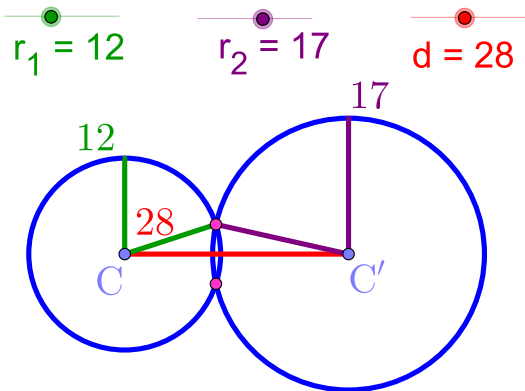


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



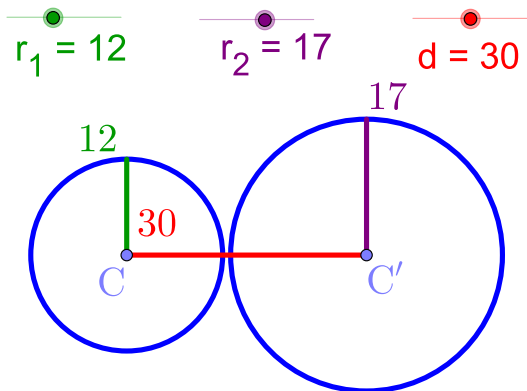
$$12 + 17 = 29 \quad |12 - 17| = 5$$



# The Positional Relationship of Two Circles

▶ Start

▶ End



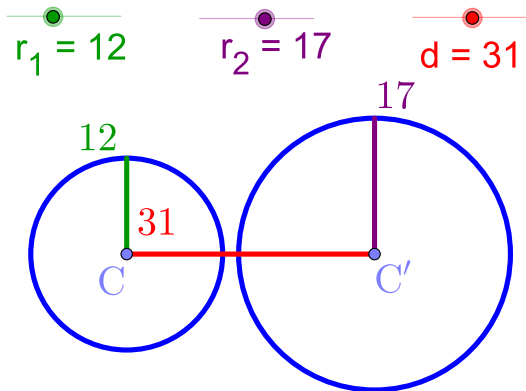
$$12 + 17 = 29$$

$$|12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End

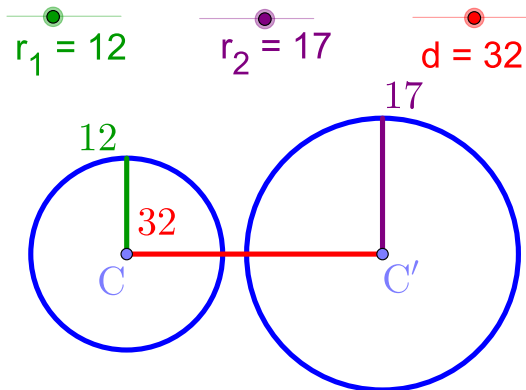


$$12 + 17 = 29 \quad |12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



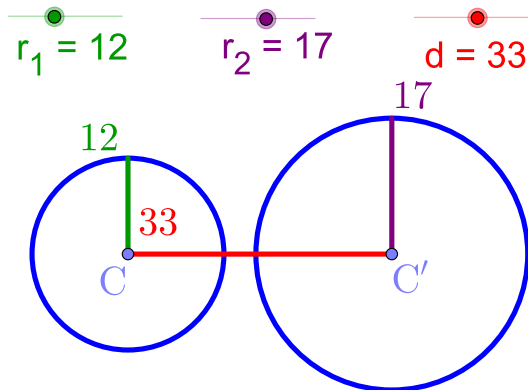
$$12 + 17 = 29$$

$$|12 - 17| = 5$$

# The Positional Relationship of Two Circles

▶ Start

▶ End



$$12 + 17 = 29 \quad |12 - 17| = 5$$

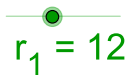




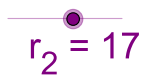
# The Positional Relationship of Two Circles

▶ Start

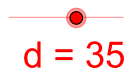
▶ End



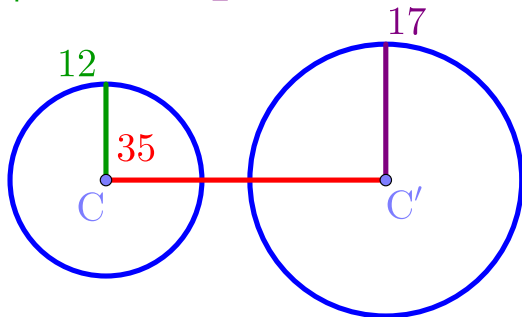
$r_1 = 12$



$r_2 = 17$



$d = 35$



$$12 + 17 = 29 \quad |12 - 17| = 5$$

Github:

<https://min7014.github.io/math20191111001.html>

Click or paste URL into the URL search bar,  
and you can see a picture moving.