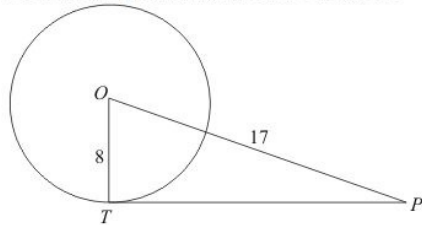




### Circles Ex 10.2 Q1

**Answer :**

Let us put the given data in the form of a diagram.



We have to find TP. From the properties of tangents we know that a tangent will always be at right angles to the radius of the circle at the point of contact. Therefore  $\angle OTP$  is a right angle and triangle  $OTP$  is a right triangle.

We can find the length of  $TP$  using Pythagoras theorem. We have,

$$TP^2 = OP^2 - OT^2$$

$$TP^2 = 17^2 - 8^2$$

$$TP^2 = (17 - 8)(17 + 8)$$

$$TP^2 = 9 \times 25$$

$$TP^2 = 225$$

$$TP = \sqrt{225}$$

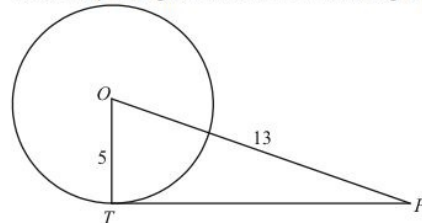
$$TP = 15$$

Therefore, the length of  $TP$  is 15 cm.

### Circles Ex 10.2 Q2

**Answer :**

Let us first put the given data in the form of a diagram.



We have to find TP. From the properties of tangents we know that a tangent will always be at right angles to the radius of the circle at the point of contact. Therefore  $\angle OTP$  is a right angle and triangle  $OTP$  is a right triangle.

We can find the length of  $TP$  using Pythagoras theorem. We have,

$$TP^2 = OP^2 - OT^2$$

$$TP^2 = 13^2 - 5^2$$

$$TP^2 = (13 - 5)(13 + 5)$$

$$TP^2 = 8 \times 18$$

$$TP^2 = 144$$

$$TP = \sqrt{144}$$

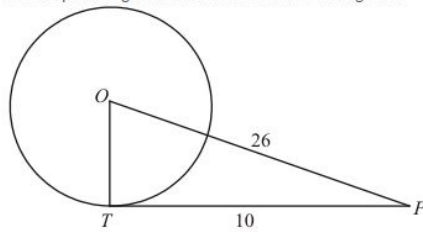
$$TP = 12$$

Therefore, the length of  $TP$  is 12 cm.

### Circles Ex 10.2 Q3

**Answer :**

Let us put the given data in the form of a diagram.



We have to find  $OT$ . From the properties of tangents we know that a tangent will always be at right angles to the radius of the circle at the point of contact. Therefore  $\angle OTP$  is a right angle and triangle  $OTP$  is a right triangle.

We can find the length of  $TP$  using Pythagoras theorem. We have,

$$OT^2 = OP^2 - TP^2$$

$$OT^2 = 26^2 - 10^2$$

$$OT^2 = (26 - 10)(26 + 10)$$

$$OT^2 = 16 \times 36$$

$$OT^2 = 576$$

$$TP = \sqrt{576}$$

$$TP = 24$$

Therefore, the radius of the circle is 24 cm.

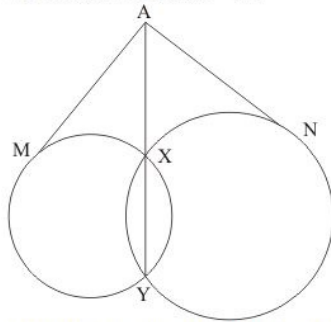
#### Circles Ex 10.2 Q4

**Answer :**

Let the two circles intersect at points X and Y. XY is the common chord.

Suppose A is a point on the common chord and AM and AN be the tangents drawn from A to the circle.

We need to show that  $AM = AN$ .



In order to prove the above relation, following property will be used.

"Let PT be a tangent to the circle from an external point P and a secant to the circle through P intersects the circle at points A and B, then  $PT^2 = PA \times PB$ ".

Now, AM is the tangent and AXY is a secant.

$$\therefore AM^2 = AX \times AY \dots (1)$$

AN is the tangent and AXY is a secant.

$$\therefore AN^2 = AX \times AY \dots (2)$$

From (1) and (2), we have

$$AM^2 = AN^2$$

$$\therefore AM = AN$$

\*\*\*\*\* END \*\*\*\*\*