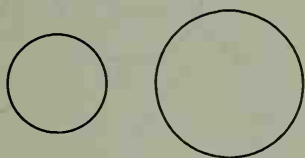


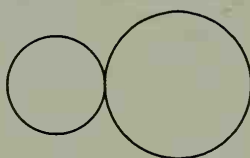
## Classroom Exercises

1. How many common external tangents can be drawn to the two circles?

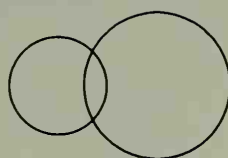
a.



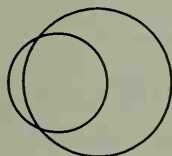
b.



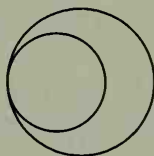
c.



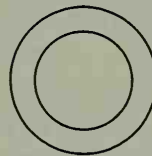
d.



e.



f.



2. How many common internal tangents can be drawn to each pair of circles in Exercise 1 above?

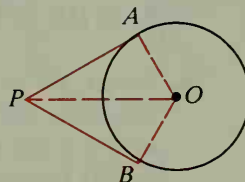
3. a. Which pair of circles shown above are externally tangent?

b. Which pair are internally tangent?

4. Given:  $\overline{PA}$  and  $\overline{PB}$  are tangents to  $\odot O$ .

Use the diagram at the right to explain how the corollary on page 333 follows from Theorem 9-1.

5. In the diagram, which pairs of angles are congruent? Which pairs of angles are complementary? Which pairs of angles are supplementary?



## Written Exercises

$\overline{JT}$  is tangent to  $\odot O$  at  $T$ . Complete.

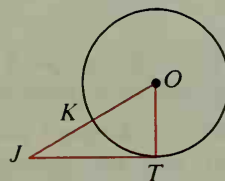
A

1. If  $OT = 6$  and  $JO = 10$ , then  $JT = \underline{\quad? \quad}$ .

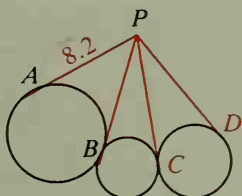
2. If  $OT = 6$  and  $JT = 10$ , then  $JO = \underline{\quad? \quad}$ .

3. If  $m\angle TOJ = 60$  and  $OT = 6$ , then  $JO = \underline{\quad? \quad}$ .

4. If  $JK = 9$  and  $KO = 8$ , then  $JT = \underline{\quad? \quad}$ .



5. The diagram below shows tangent lines and circles. Find  $PD$ .



6.  $\overline{RS}$  and  $\overline{TU}$  are common internal tangents to the circles. If  $RZ = 4.7$  and  $ZU = 7.3$ , find  $RS$  and  $TU$ .

