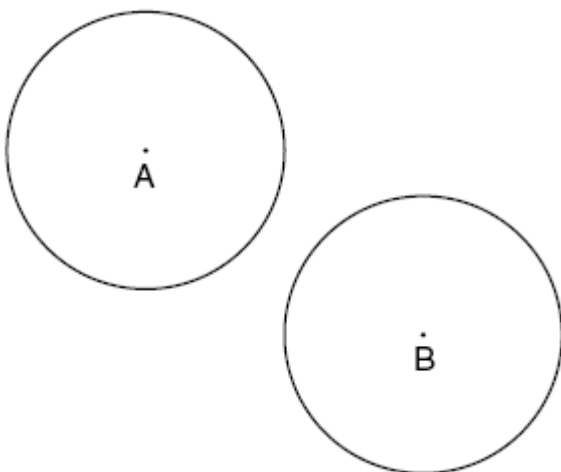


NAME: _____

G.G.50: Investigate, justify, and apply theorems about tangent lines to a circle: a perpendicular to the tangent at the point of tangency; two tangents to a circle from the same external point; common tangent of two non-intersecting or tangent circles

1. fall0824ge, P.I. G.G.50

In the diagram below, circle A and circle B are shown.

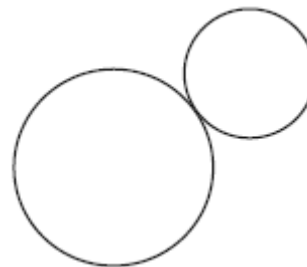


What is the total number of lines of tangency that are common to circle A and circle B ?

- [A] 2 [B] 4 [C] 3 [D] 1

2. 080928ge, P.I. G.G.50

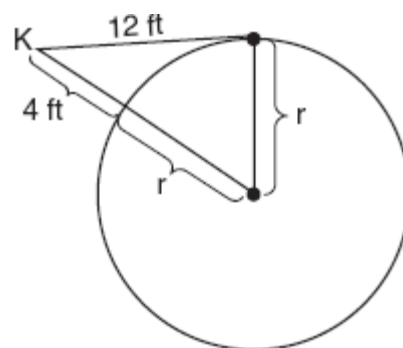
How many common tangent lines can be drawn to the two externally tangent circles shown below?



- [A] 1 [B] 4 [C] 2 [D] 3

3. 080518b, P.I. G.G.50

Kimi wants to determine the radius of a circular pool without getting wet. She is located at point K , which is 4 feet from the pool and 12 feet from the point of tangency, as shown in the accompanying diagram.



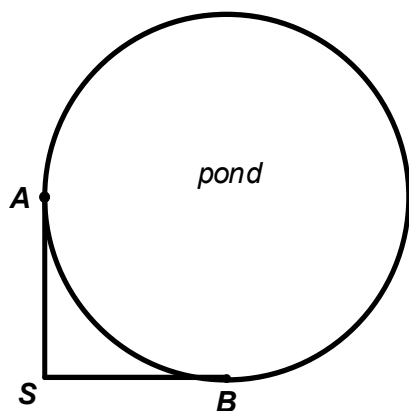
What is the radius of the pool?

- [A] $4\sqrt{10}$ ft [B] 16 ft
[C] 32 ft [D] 20 ft

NAME: _____

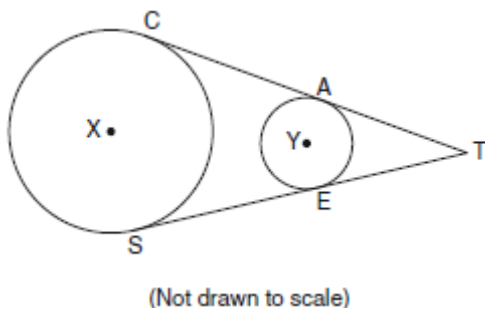
4. fall9926b, P.I. G.G.50

Two docks, A and B , are located on a circular pond as shown in the diagram below. A surveyor wants to determine the distance these two docks are from each other across the pond. The surveyor, located at point S , knows that he is 200 yards from both docks and his measuring equipment indicates that there is a 90° angle between his sight lines to dock A and to dock B . How far, to the nearest tenth of a yard, is it across the pond from dock A to dock B ?



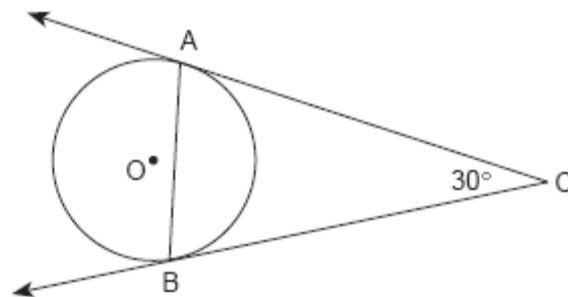
5. 060935ge, P.I. G.G.50

In the diagram below, circles X and Y have two tangents drawn to them from external point T . The points of tangency are C , A , S , and E . The ratio of TA to AC is 1:3. If $TS = 24$, find the length of SE .



6. 010213b, P.I. G.G.50

The accompanying diagram represents a circular pond O with docks located at points A and B . From a cabin located at C , two sightings are taken that determine an angle of 30° for tangents \overrightarrow{CA} and \overrightarrow{CB} .

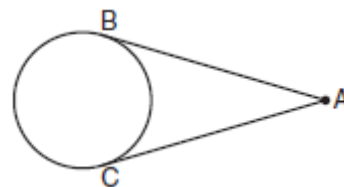


What is $m\angle CAB$?

- [A] 60 [B] 150 [C] 30 [D] 75

7. 060924b, P.I. G.G.50

The accompanying diagram shows two lengths of wire attached to a wheel, so that \overrightarrow{AB} and \overrightarrow{AC} are tangent to the wheel. If the major arc \widehat{BC} has a measure of 220° , find the number of degrees in $m\angle A$.



G.G.50: Investigate, justify, and apply theorems about tangent lines to a circle: a perpendicular to the tangent at the point of tangency; two tangents to a circle from the same external point; common tangent of two non-intersecting or tangent circles

[1] B

[2] D

[3] B

[2] 282.8 using an appropriate method such as law of cosines, Pythagorean Theorem, right triangle trig or special right triangle 45, 45, 90.

[1] Gives a correct answer of 282.8 with no work shown.

or [1] Gives an incorrectly rounded answer such as 283, or 282.84, or 282.

or [1] Uses the Pythagorean Theorem correctly, but makes an incorrect substitution for one of the sides, and then rounds correctly.

or [1] Uses an appropriate method, but makes a calculation mistake and then rounds answer correctly.

[0] A zero response is completely incorrect, irrelevant, or incoherent; or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[4] 18, and appropriate work is shown, such as $3x + x = 24$.

[3] Appropriate work is shown, but one computational error is made.

or [3] $x = 6$, and appropriate work is shown, but \overline{SE} is not found or is found incorrectly.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] 18, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[5] incorrect procedure.

[6] D

[2] 40, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] 40, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[7] incorrect procedure.