

Key

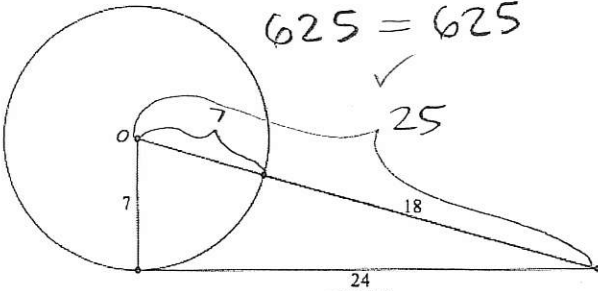
12.8 Tangent Lines

Name _____ Hr _____

- A. Tangent lines are Perpendicular to the radius of a circle at the point of tangency.
 B. If a line is perpendicular to a radius at its endpoint then the line is tangent to the circle.
 C. If two tangent segments to a circle share a common endpoint outside the circle, then the two segments are congruent.

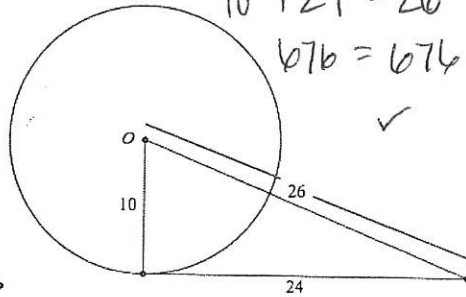
Determine whether each segment is tangent to the given circle: (use pythagorean theorem)

1. $7^2 + 24^2 = 25^2$
 $625 = 625$



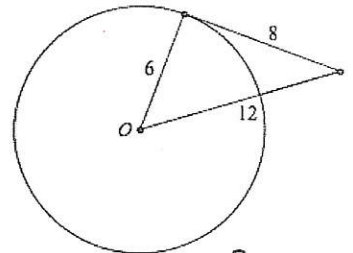
yes, tangent

2. $10^2 + 24^2 = 26^2$
 $676 = 676$



yes tangent

3.

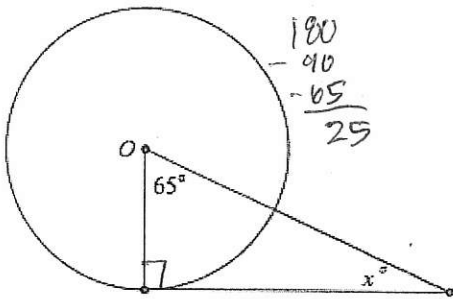


$6^2 + 8^2 = 12^2$
 $100 \neq 144$

Not tangent

Find the measure of angle x . Given that the line that appears to be tangent, is tangent.

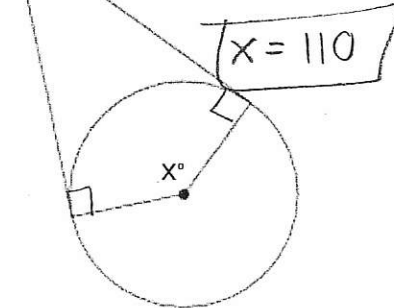
4. $180 - 90 - 65 = 25$



$x = 25$

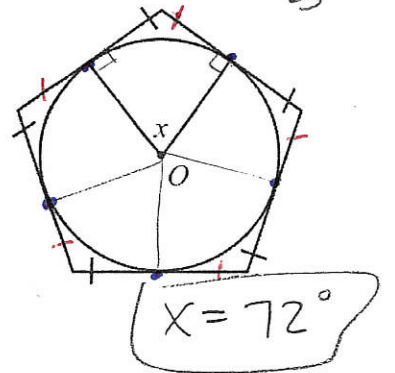
5.

$70 + 90 + 90 + x = 360$
 $250 + x = 360$



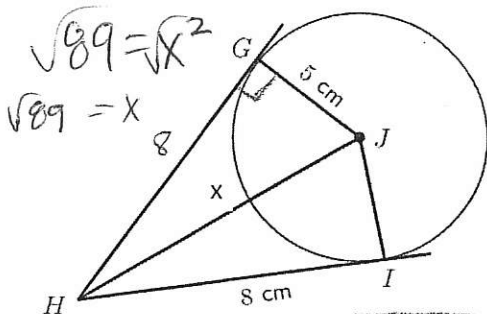
$x = 110$

$\frac{360}{5} = 72^\circ$



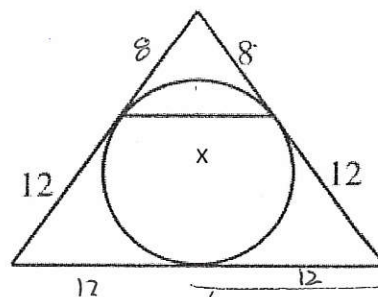
$x = 72^\circ$

7. $5^2 + 8^2 = x^2$



$x = \sqrt{89}$ or 9.43

8.



$\frac{8}{x} = \frac{20}{24}$
 $\frac{192}{20} = \frac{20x}{20}$

$x = 9.6$

Find the missing length given that the line that appears to be tangent, is tangent.

9.

$$6^2 + x^2 = 14^2$$

$$14^2 - 6^2 = x^2$$

$$\sqrt{160} = x^2$$

$$\sqrt{10 \cdot 16} = 4\sqrt{10} \text{ or } 12.65$$

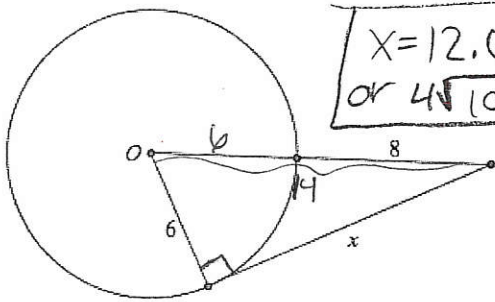
11.

$$x^2 + 4^2 = 9^2$$

$$9^2 - 4^2 = x^2$$

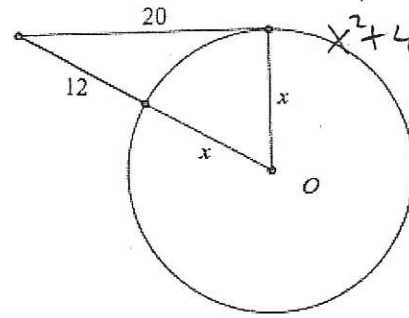
$$\sqrt{65} = x^2$$

$$x = \sqrt{65} \text{ or } 8.06$$



$$x = 12.65 \text{ or } 4\sqrt{10}$$

10.



$$x^2 + 20^2 = (x+12)^2$$

$$x^2 + 400 = x^2 + 24x + 144$$

$$256 = 24x$$

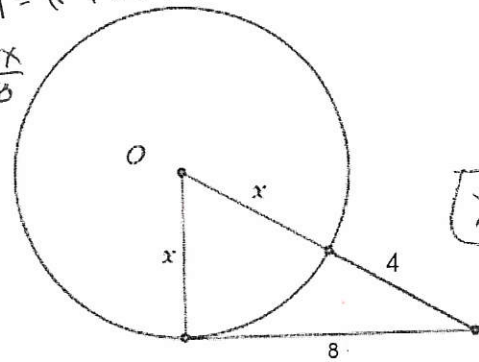
$$x = 10.67$$

$$12. \quad x^2 + 8^2 = (x+4)^2$$

$$x^2 + 64 = x^2 + 8x + 16$$

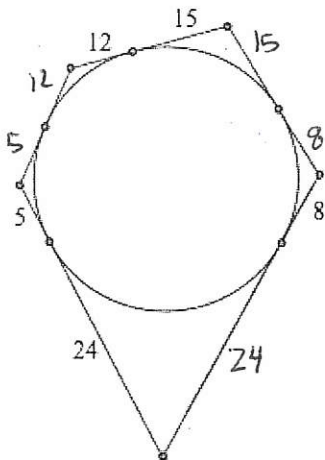
$$\frac{48}{8} = \frac{8x}{8}$$

$$x = 6$$



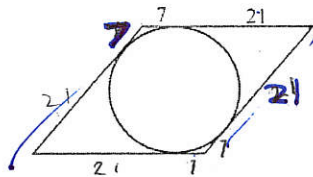
$$x = 6$$

13. Find the perimeter of the pentagon:



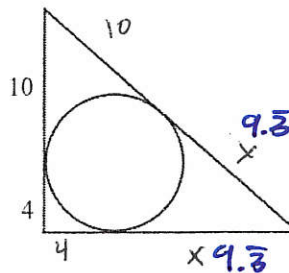
$$128$$

14. Find the perimeter of the ~~parallelogram~~ ^{rhombus}.



$$112$$

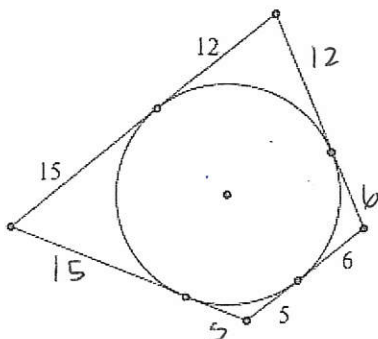
15. Find the perimeter of the right triangle:



$$x = 9.33$$

$$\text{Perimeter} = 46.66$$

16. Find the perimeter of the polygon:



$$76$$

$$14^2 + (4+x)^2 = (10+x)^2$$

$$196 + 16 + 8x + x^2 = 100 + 20x + x^2$$

$$\frac{212 + 8x}{10} - \frac{8x}{10} = \frac{100 + 20x}{10} - \frac{20x}{10}$$

$$\frac{112}{10} = \frac{12x}{10}$$

$$11.2 = 1.2x$$

$$9.33 = x$$