

Assignment 2.2

Find each product.

1) $(6x + 5)(4x - 8)$

$24x^2 - 48x + 20x - 40$

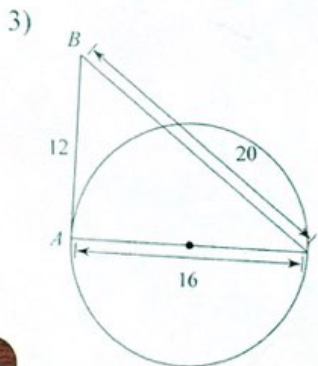
$24x^2 - 28x - 40$

2) $(k - 1)^2$

$(k - 1)(k - 1)$

$k^2 - 2k + 1$

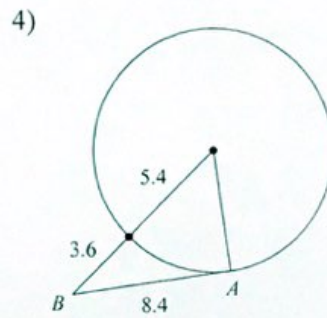
Determine if line AB is tangent to the circle.



$12^2 + 16^2 = 20^2$

$400 = 400$

TANGENT

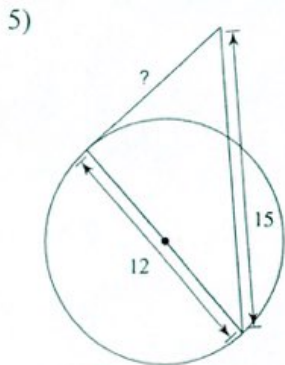


$5.4^2 + 8.4^2 = 9^2$

$99.72 \neq 81$

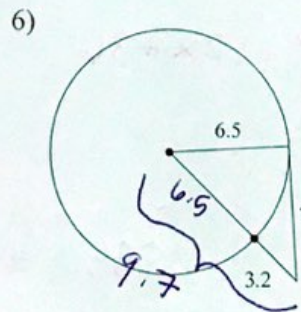
NOT TANGENT

Find the segment length indicated. Assume that lines which appear to be tangent are tangent.



$(?)^2 + 12^2 = 15^2$

$? = 9$

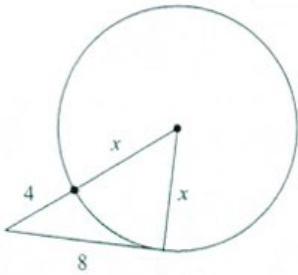


$6.5^2 + (?)^2 = 9.7^2$

$? = 7.2$

Solve for x . Assume that lines which appear to be tangent are tangent.

7)



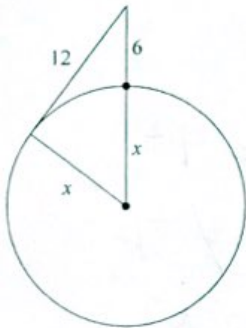
$$x^2 + 8^2 = (x+4)^2$$

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

$$48 = 8x$$

$$\boxed{x = 6}$$

9)

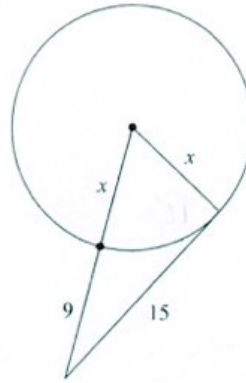


$$x^2 + 12^2 = (x+6)^2$$

$$x^2 + 144 = x^2 + 12x + 36$$

$$\boxed{x = 9}$$

8)



$$x^2 + 15^2 = (x+9)^2$$

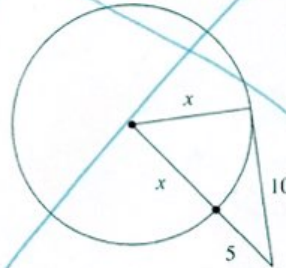
$$x^2 + 225 = x^2 + 18x + 81$$

$$-81 \quad -81$$

$$144 = 18x$$

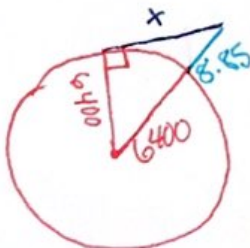
$$\boxed{x = 8}$$

10)



- 11) The peak of Mt. Everest is about 8850 m above sea level. About how many kilometers is it from the peak of Mt. Everest to the horizon if the Earth's radius is about 6400 km? Draw a diagram to help you solve the problem.

$$8850 = 8.85 \text{ km}$$



$$x^2 + 6400^2 = 6408.85^2$$

$$\boxed{x = 336.7 \text{ km}}$$

The circle at the right represents Earth. The radius of Earth is about 6400 km. Find the distance d to the horizon that a person can see on a clear day from each of the following heights h above Earth. Round your answer to the nearest tenth of a kilometer.

12. $7 \text{ km} = h$

$$d^2 + 6400^2 = 6407^2$$

$$d \approx 299.4 \text{ km}$$

13. $400 \text{ km} = h$

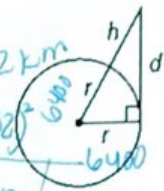
$$d^2 + 6400^2 = 6800^2$$

$$d \approx 2,297.8 \text{ km}$$

14. $2000 \text{ m} = h = 2 \text{ km}$

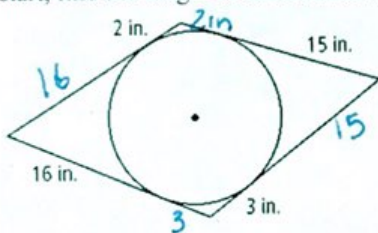
$$d^2 + 6400^2 = (6402)^2$$

$$d \approx 160.0 \text{ km}$$



Each polygon circumscribes a circle. What is the perimeter of each polygon? Note that lines that appear tangent are tangent.

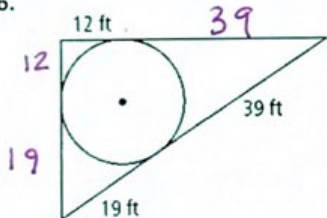
15. To start, find the length of each unknown segment.



$$P = 2 + 2 + 15 + 3 + 3 + 16 + 3 + 3$$

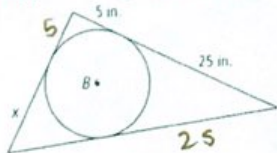
$$P = 72 \text{ inches}$$

16.



$$12 + 12 + 19 + 19 + 39 + 39 = 140 \text{ ft}$$

17. $\odot B$ is inscribed in a triangle, which has a perimeter of 76 in. What is the value of x ? Note that lines that appear tangent are tangent.



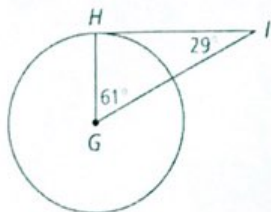
$$25 + 25 + 5 + 5 + x + x = 76$$

$$60 + 2x = 76$$

$$2x = 16$$

$$x = 8 \text{ in}$$

18. Reasoning GHI is a triangle. How can you prove that HI is tangent to $\odot G$?



Statement	Reason
1. GHI is a \triangle	1. Given
2. $\angle H + \angle G + \angle I = 180$	2. Property of \triangle
3. $\angle H + 61 + 29 = 180$	3. Substitution
4. $\angle H = 90^\circ$	4. Subtraction
5. HI tangent to $\odot G$	5. Property of tangent lines.