Secondary 3   Name ___**Key**___ Period _____

9.4 HW: Area, Law of Sines, and Law of Cosines

1. Explain how you would choose between using the Law of Sines and the Law of Cosines when finding the measure of a missing side or angle? In other words, what information do you need for each law?

Sines: 2 sides & opp angle
       2 angles & any side

Cosines: 3 sides
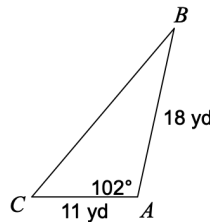   2 sides & included angle

Find each measurement indicated. Round all side lengths to the nearest hundredth and all angles to the nearest whole number.
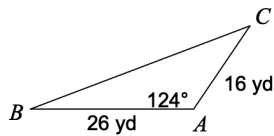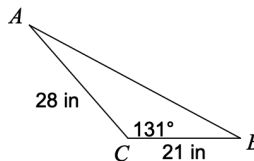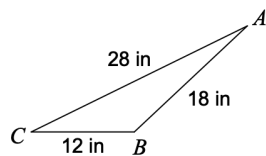
2. Find AB
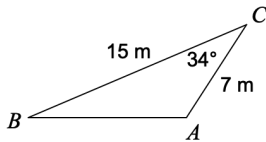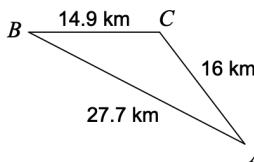

10 m

3. Find BC

22.96 yd

4. Find BC

37.38 yd

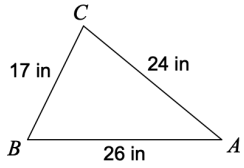5. Find AB

44.68 in

6. Find $m\angle B$

137°

7. Find $m\angle A$

64°
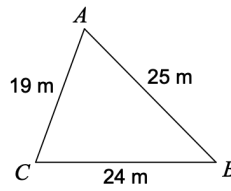
Continue on the next page →

8. Find $m\angle B$

C
17 in
24 in
B
26 in
A

64°

9. Find $m\angle A$

A
19 m
25 m
C
24 m
B

25°

10. Find $m\angle B$

C
19 in
75°
A
29 in
B

37°

11. Find $m\angle C$

16 ft
C
B
16°
23 ft
A

134°

12. Find $m\angle C$

C
23 m
B
104°
16 m
A

30°

13. Find $m\angle B$

A
19 m
C
19°
28 m
B

32°

14. Find BC

C
61°
B
14 m
30°
A

8 m

15. Find BC

B
12 ft
C
22°
93°
A
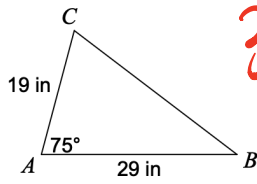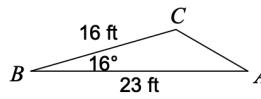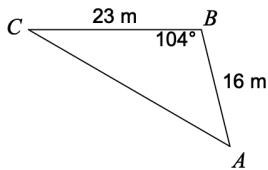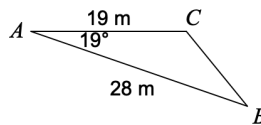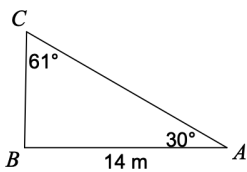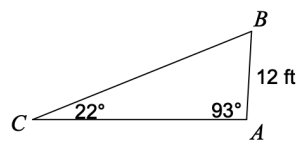
31.99 ft

16. Find AC
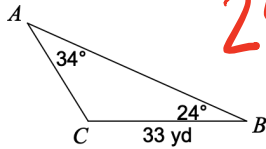
24 yd

17. Find BC
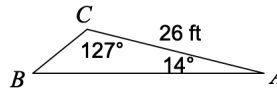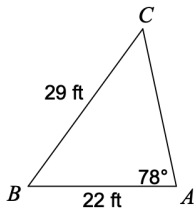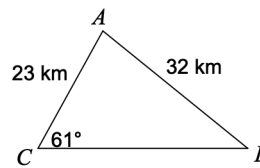
9.99 ft

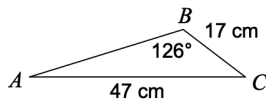18. Find $m\angle C$

48°

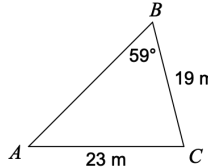19. Find $m\angle B$

39°

20. Find $m\angle A$

17°
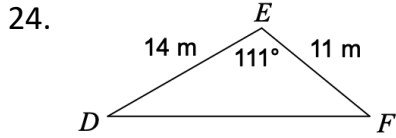
21. Find $m\angle A$

45°

22. A map shows the location of three cities that form a triangle with a 72° angle between two sides that represent distances 2.8 miles and 4.2 miles. What is the distance represented by the length of the third side? Hint: DRAW A PICTURE!
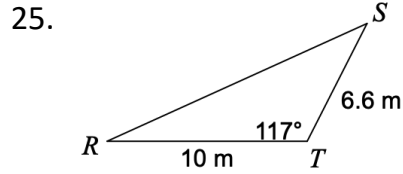
4.3 mi

23. Does the Law of Cosines apply to a right triangle? That is, does $c^2 = a^2 + b^2 - 2ab \cos C$ still work when $\angle C$ is a right angle? Justify your answer.
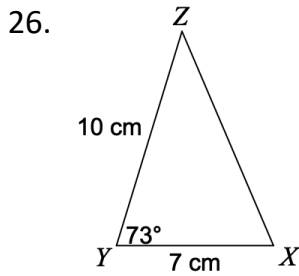
Yes → explain

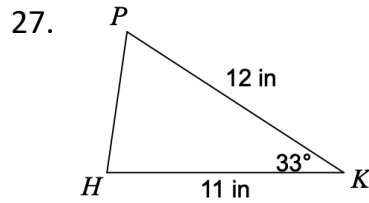**Find the area of each triangle. Round your answer to the nearest hundredth.**
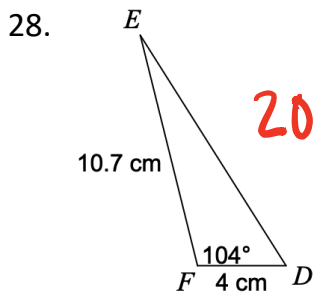
24.

E
14 m   111°   11 m
D   F

71.89 m²

25.

S
6.6 m
R   117°
10 m   T

29.40 m²

26.

Z
10 cm
73°
Y   7 cm   X

33.47 cm²

27.

P
12 in
33°
H   11 in   K

35.95 in²

28.

E
10.7 cm
104°
F   4 cm   D

20.76 cm²

29.

D   F
4 ft
10 ft   77°
E

19.49 ft²