AFM **Name** Key

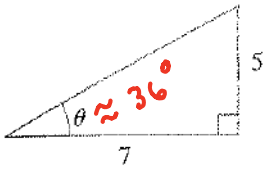
Unit 2 Test Review **Date** _____

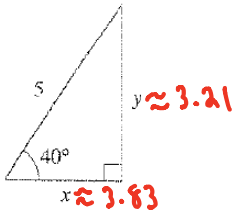
Day 1 & 2 Things to Know!

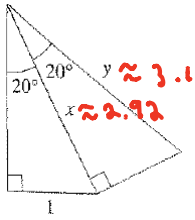
- Solve a right triangle, SOH CAH TOA, $\sin\theta = \frac{opp}{hyp}, \cos\theta = \frac{adj}{hyp}, \tan\theta = \frac{opp}{adj}$,

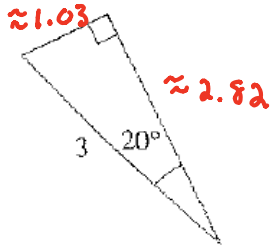
  $\csc\theta = \frac{hyp}{opp}, \sec\theta = \frac{hyp}{adj}, \cot\theta = \frac{adj}{opp}$
- Use SOH CAH TOA to solve RIGHT triangles. (Problems that say angle of elevation/depression)

Practice:

1. 

2. 

3. 

4. 

5. A guy wire from the top of the transmission tower at WJBC forms a 75° angle with the ground at a 55-foot distance from the base of the tower. How tall is the tower?

≈ 205.26 ft.

6. The base of a ladder is 6 ft from the building, and the angle formed by the ladder and the ground is 73°. How high up the building does the ladder touch?

≈ 19.63 ft

Day 4 (Parts 1 & 2) Things to Know!

- Law of Sines - $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$. (Formula will be on test)
- Use if you have ASA or AAS (that is not a right triangle), then you will only produce 1 triangle
- Use if you have SSA (that is not a right triangle), then you could produce 0, 1 or 2 triangles. If sin A>1, then no solution. If sin A < 1, consider 2 triangles!!!!

Practice:

7. Two markers A and B are on the same side of a canyon rim 56 ft apart. A third marker, C, located across the rim, is positioned so that ΔBAC = 72° and ΔABC = 53°. Find the distance between C and A.

x ≈ 54.6 ft.

8. A civil engineer wants to determine the distances from points A and B to an inaccessible point C, as shown. From direct measurements, the engineer knows that AB = 25m, ∠A = 110°, and ∠B = 20°. Find AC and BC.

x y

x = 11.2

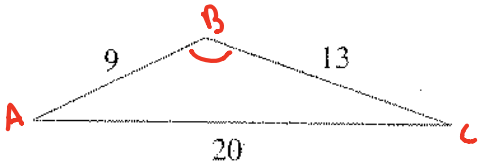
y = 30.7

Day 5 Things to Know!

- Law of Cosines - $a^2 = b^2 + c^2 - 2bc\cos A$, $b^2 = a^2 + c^2 - 2ac\cos B$, $c^2 = a^2 + b^2 - 2ab\cos C$ (formulas will be given on test)
- Use Law of Cosines if you have SAS or SSS.

Practice:

9. Find the measure of the largest angle in the triangle below.



$B = 130^\circ$

10. In order to determine the distance between two points A and B on opposite sides of a lake, a surveyor chooses a point C that is 900 ft from A and 225 ft from B. If the measure of the angle at C is 70°, find the distance between A and B.

$x \approx 849.8$ ft.

11. A car travels along a straight road, heading east for 1 hour, then changing to northeast direction at 135º onto another road, traveling for 30 min. If the car has maintained a constant speed of 40mph, how far is it from its starting point?

$x \approx 55.96 \approx 56$ mi

12. Suppose you want to fence a triangular lot. If two sides measure 84 feet and 78 feet and the angle between the two sides is 102º, what is the length of the fence to the nearest foot?

$x \approx 287.9$ ft.

Day 3 (and part of Day 4 Part 2) Things to Know!

Area of a Triangle:

- The area of a triangle with sides of lengths a and b and with included angle θ is $A = \frac{1}{2}ab\sin\theta$.

Practice:

13. Find the area of a triangle whose side lengths are 8 and 14 and has an included angle of 35º.

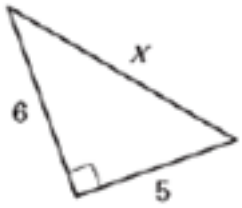
$A = 32.1$

14. Find the area of a triangle with side lengths 5, 6 and 8.

$\angle = 93^\circ$ $A \approx 14.98 \approx 15$

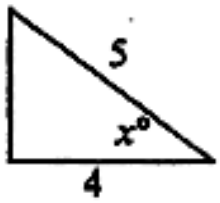
Mixing it all up…

15. Solve for x



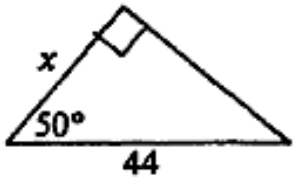
$x \approx 7.8$

16. Solve for x



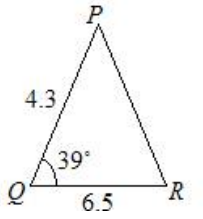
$x = 37^\circ$

17. Solve for x



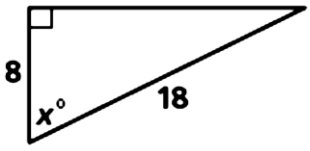
$x \approx 28.3$

18. Find the area of the ΔPQR



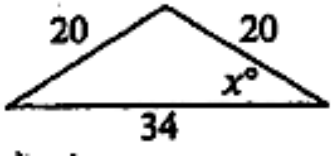
$A = 8.9$

19. Solve for x



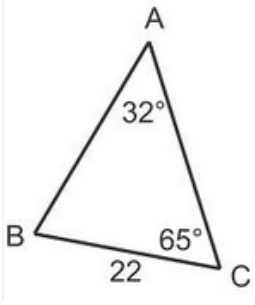
$x = 64^\circ$

20. Solve for x



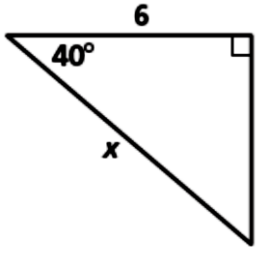
$x = 32^\circ$

21. Find the length of side AB



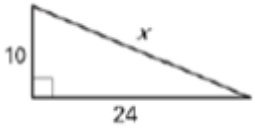
$x = 37$

22. Solve for x



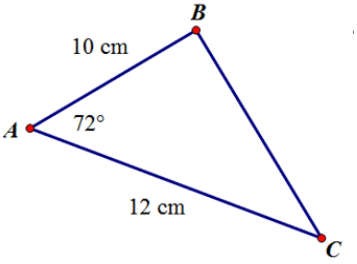
$x \approx 7.8$

23. Solve for x



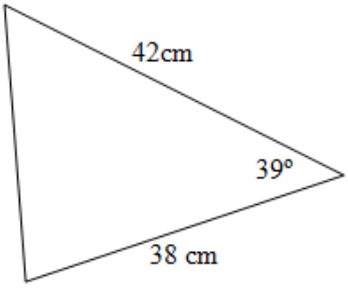
$x = 26$

24. Find the area of ΔABC.



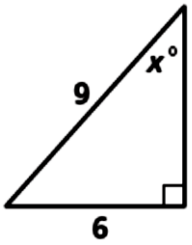
$A \approx 57 \text{ cm}^2$

25. Solve for the missing side



$x \approx 26.96 \approx 27$

26. Solve for x



$x = 42^\circ$

27. From the top of a 120 foot tower, an air traffic controller observes an airplane on the runway at an angle of depression of 19°. How far from the base of the tower is the airplane?

$x \approx 348.5$ ft.

28. Find the angle of elevation of the sun when a 12.5 meter tall telephone pole casts an 18 meter long shadow.

$x \approx 34.8$ m

29. If $\tan\theta = 8/17$, find the other 5 trig ratios

$\sin\theta = \frac{8\sqrt{353}}{353}$ $\quad \csc\theta = \frac{\sqrt{353}}{8}$

$\cos\theta = \frac{17\sqrt{353}}{353}$ $\quad \sec\theta = \frac{\sqrt{353}}{17}$

$\tan\theta = \frac{8}{17}$ $\quad \cot\theta = \frac{17}{8}$

30. If $\csc\theta = \frac{\sqrt{13}}{4}$, find the other 5 trig ratios

31. If cos(x)=0.42, what is the measure of angle x?

$\cos^{-1}(x) = 0.42$

$x = 66^{\circ}$

32. Evaluate tan(45)

$= 1$

33. Find the area of triangle ABC if angle A is 30 degrees, AB=12 and AC=14.

A = 42

34. In triangle ABC, if a=6, b=10 and ∠A=42, how many triangles can be formed?

no Δ's possible

35. From a point A on the ground, the angle of elevation to the top of a tall building is 24.1°. From a point B, which is 600 feet closer to the building, the angle of elevation is measured to be 30.2°. Find the height of the building.

x = 2305.6 ft

y = 1159.8 ft