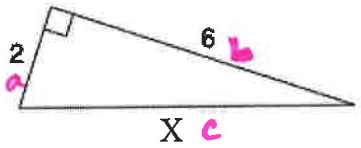
Name: Key Class: _____

Math 2: Unit 5 Review Sheet

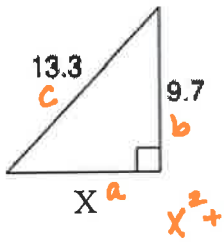
Round to the nearest tenth!

Part 1: Pythagorean Theorem. Use the Pythagorean Theorem to solve for the missing side length

1. 

$2^2+6^2=x^2$
$4+36=x^2$
$40=x^2$
$x=\sqrt{40}$

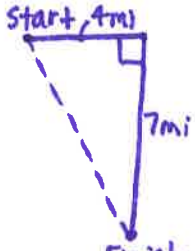
X = ≈ 6.3 units

2. 

$x^2+9.7^2=13.3^2$
$x^2+94.09=176.89$
$x^2=82.8$
$x=\sqrt{82.8}$

X = ≈ 9.1 units

3. You ride a bike for 4 miles, turn right and then ride for another 7 miles. How far are you from your original starting point?



$4^2+7^2=c^2$
$65=c^2$
$c=\sqrt{65}$

X = ≈ 8.1 miles

Part 2: Converse to the Pythagorean Theorem. Determine if the triangle is acute, obtuse, or right.
Also state scalene, isosceles, or equilateral.

4. Side lengths: 25, 43, 25

$43^2 \square 25^2+25^2$
$1849 \boxed{>} 1250$

Obtuse and Isosceles

5. Side lengths: 1721, 1721, 1721

$1721^2 \square 1721^2+1721^2$
$2961841 \boxed{<} 5923682$

Acute and Equilateral

6. Side lengths: 12, 5, 13

$13^2 \square 12^2+5^2$
$169 \boxed{=} 169$

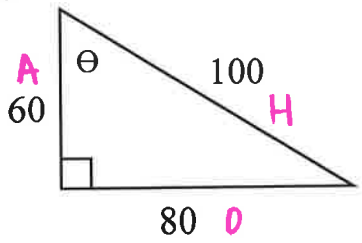
Right and Scalene

7. Side lengths: 17, 20, 8

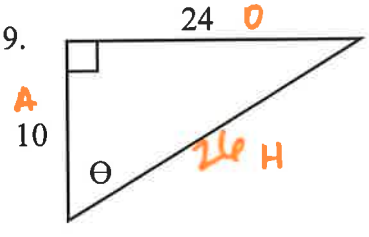
$20^2 \square 17^2+8^2$
$400 \boxed{>} 353$

Obtuse and Scalene

Part 3: SOHCAHTOA. Find the three trigonometric ratios for each triangle

8. 

$\sin\Theta = \frac{80}{100} = \frac{4}{5}$ $\cos\Theta = \frac{60}{100} = \frac{3}{5}$ $\tan\Theta = \frac{80}{60} = \frac{4}{3}$

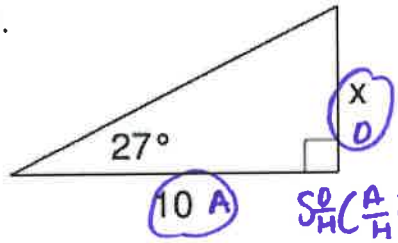
9. 

$10^2+24^2=c^2$
$676=c^2$
$c=\sqrt{676}$
$c=26$ units

$\sin\Theta = \frac{24}{26} = \frac{12}{13}$ $\cos\Theta = \frac{10}{26} = \frac{5}{13}$ $\tan\Theta = \frac{24}{10} = \frac{12}{5}$

Part 4: Missing side lengths. Determine if you would use sine, cosine, or tangent to solve for x, then solve.

10.



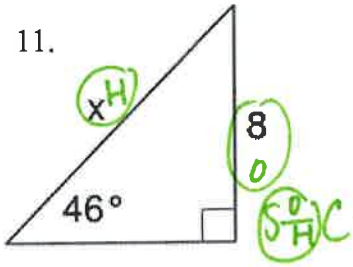
SOH CAH TOA

$\tan(27) = \frac{x}{10}$ · 10

$10\tan(27) = x$

$x \approx 5.1 \text{ units}$

11.



SOH CAH TOA

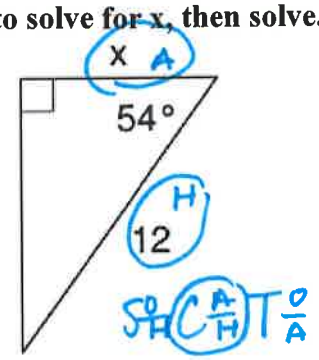
$x \cdot \sin(46) = \frac{8}{x}$ · x

$x \cdot \sin(46) = 8$

$\frac{x \cdot \sin(46)}{\sin(46)} = \frac{8}{\sin(46)}$

$x = \frac{8}{\sin(46)} \approx 11.1 \text{ units}$

12.



SOH CAH TOA

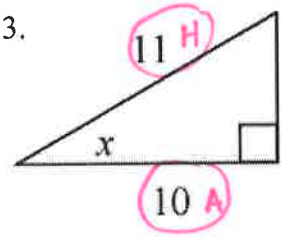
$\cos(54) = \frac{x}{12}$ · 12

$12\cos(54) = x$

$x \approx 7.1 \text{ units}$

Part 5: Missing angles. Determine if you would use sine, cosine, or tangent to solve for Θ, then solve.

13.



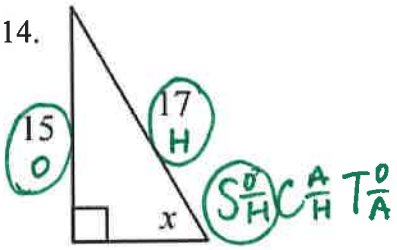
SOH CAH TOA

$\cos(x) = \frac{10}{11}$

$x = \cos^{-1}\left(\frac{10}{11}\right)$

$x \approx 24.6°$

14.



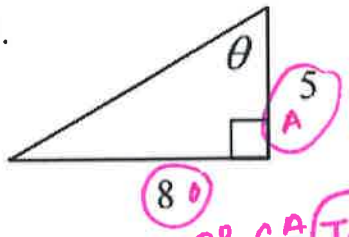
SOH CAH TOA

$\sin(x) = \frac{15}{17}$

$x = \sin^{-1}\left(\frac{15}{17}\right)$

$x \approx 61.9°$

15.



SOH CAH TOA

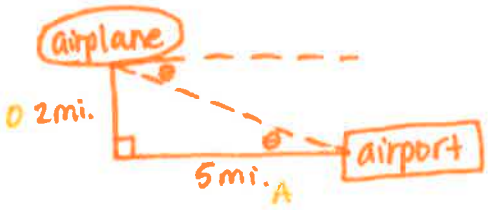
$\tan(\theta) = \frac{8}{5}$

$\theta = \tan^{-1}\left(\frac{8}{5}\right)$

$\theta \approx 58.0°$

Part 6: Word Problems. Draw a picture to help!

16. An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the angle of depression from the airplane to the airport?

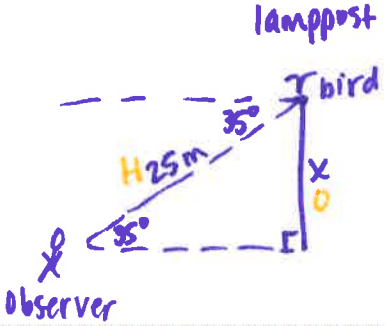


$\tan\theta = \frac{2}{5}$

$\theta = \tan^{-1}\left(\frac{2}{5}\right)$

$\approx 21.8°$

17. A bird sits on top of a lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35°. The distance from the bird to the observer is 25 meters. How tall is the lamppost?



$\sin(35) = \frac{x}{25}$

$25\sin(35) = x$

$\approx 14.3\text{m}$