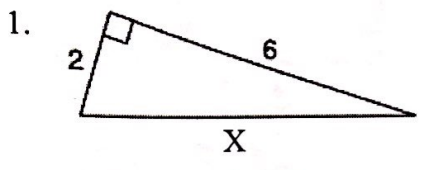


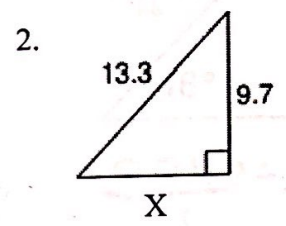
Math 2: Unit 5 Review Sheet

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



$$2^2 + 6^2 = X^2$$

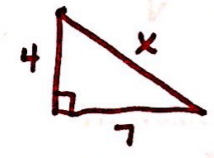
$$X = \underline{6.32}$$



$$X^2 + 9.7^2 = 13.3^2$$

$$X = \underline{9.09}$$

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?



$$4^2 + 7^2 = X^2$$

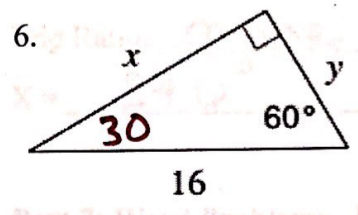
$$X = \underline{8.06 \text{ mi}}$$

Part 2: Converse to the Pythagorean Theorem. Determine if the triangle is acute, obtuse, or right.

4. Side lengths: 12, 5, 13
 $5^2 + 12^2 \square 13^2$
 $169 \square 169$
Right

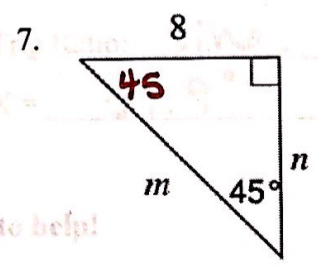
5. Side lengths: 17, 20, 8
 $8^2 + 17^2 \square 20^2$
 $353 \square 400$
Obtuse

Part 3: Special Right Triangles. Use the ratios of the side lengths to find the missing side lengths



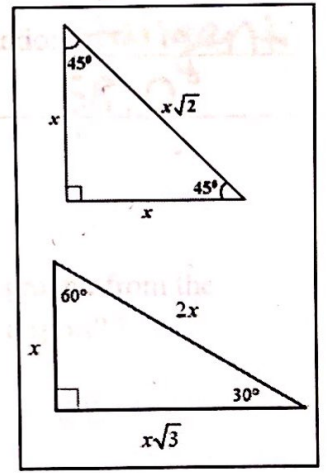
$$X = \underline{8\sqrt{3}}$$

$$Y = \underline{8}$$

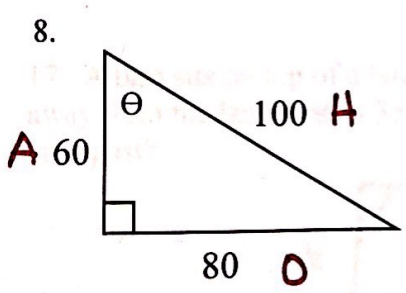


$$M = \underline{8\sqrt{2}}$$

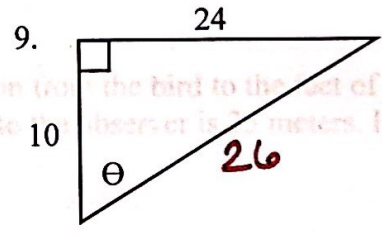
$$N = \underline{8}$$



Part 4: SOHCAHTOA. Find the three trigonometric ratios for each triangle



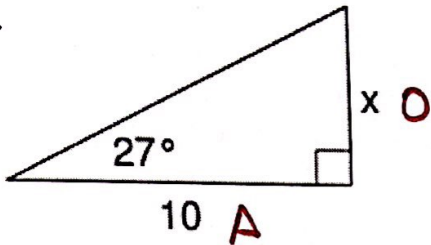
$$\sin \theta = \frac{60}{100} = \frac{3}{5} \quad \cos \theta = \frac{80}{100} = \frac{4}{5} \quad \tan \theta = \frac{60}{80} = \frac{3}{4}$$



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

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

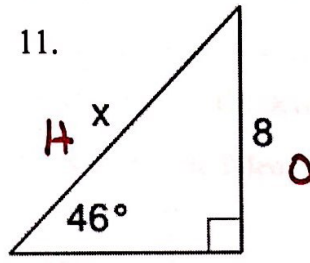
10.



$$\frac{\tan 27}{1} = \frac{x}{10}$$

Trig Ratio: tangent
 X = 5.1

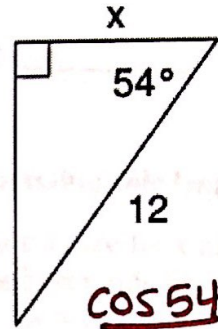
11.



$$\frac{\sin 46}{1} = \frac{8}{x}$$

Trig Ratio: Sine
 X = 11.1

12.

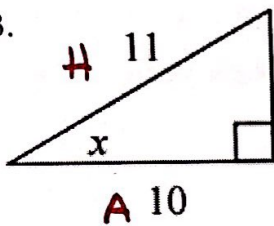


$$\frac{\cos 54}{1} = \frac{x}{12}$$

Trig Ratio: cosine
 X = 7.1

Part 6: Missing angles. Determine if you would use sine, cosine, or tangent to solve for θ , then solve.

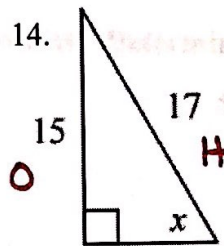
13.



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

Trig Ratio: cosine
 X = 24.6 degrees

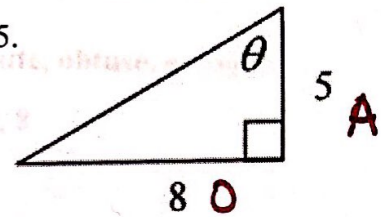
14.



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

Trig Ratio: sine
 X = 61.9 degrees

15.

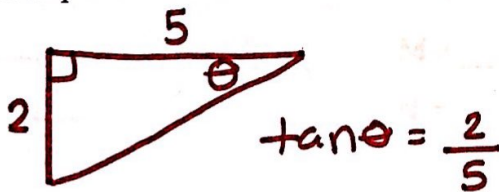


$$\tan \theta = \frac{8}{5}$$

Trig Ratio: tangent
 $\theta =$ 58.0 degrees

Part 7: Word Problems. Draw a picture to help!

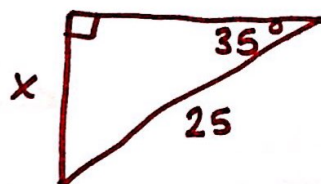
16. An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the angle of depression from the airplane to the airport?



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

21.8 degrees

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 degrees. The distance from the bird to the observer is 25 meters. How tall is the lamppost?



$$\frac{\sin 35}{1} = \frac{x}{25}$$

14.3 meters