

# Chapter One/Two Prac. Test

Trigonometry | Mr. Cooper

Name \_\_\_\_\_

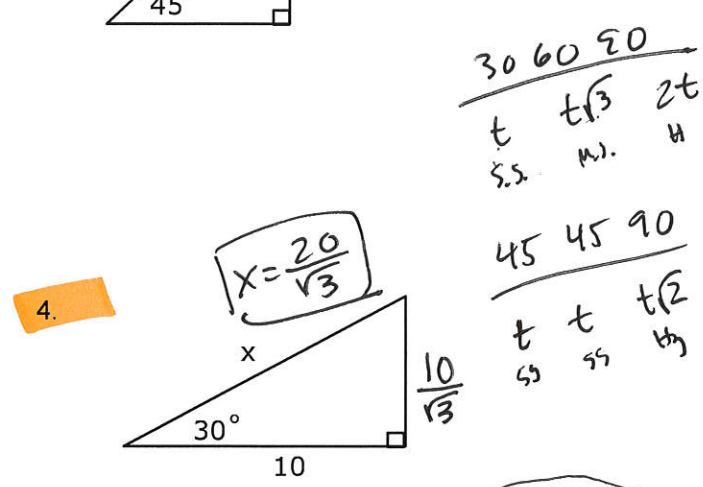
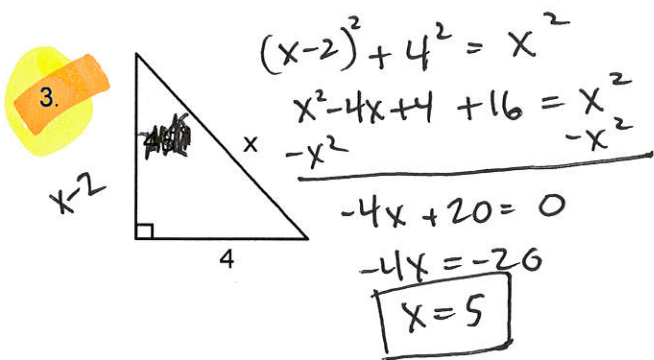
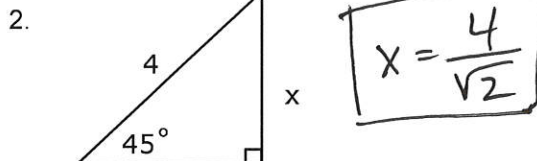
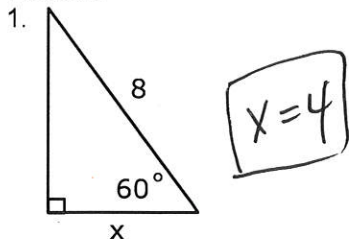
Date \_\_\_\_\_

Period \_\_\_\_\_

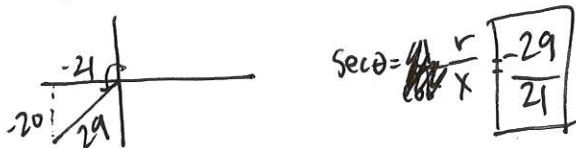
Grade \_\_\_\_\_

Answer each question. Make sure to show any and all work.

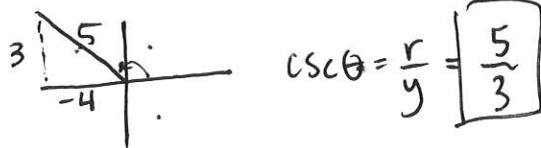
Find x...



5. Find  $\sec\theta$  if  $\sin\theta = \frac{-20}{29}$  and  $\theta$  terminates in QIII

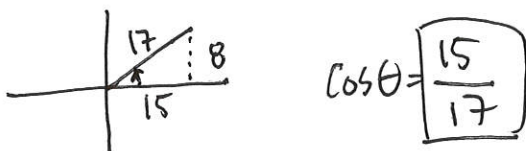


6. Find  $\csc\theta$  if  $\tan\theta = -\frac{3}{4}$  and  $\sin\theta > 0$



$\sin\theta = \frac{y}{r}$   
 $\cos\theta = \frac{x}{r}$   
 $\tan\theta = \frac{y}{x}$

7. Find  $\cos\theta$  if  $\sin\theta = \frac{8}{17}$  and  $\theta$  terminates in QI

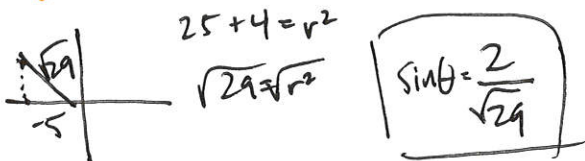


8. Find  $\tan\theta$  if  $\cos\theta = -\frac{5}{13}$  and  $\sin\theta > 0$

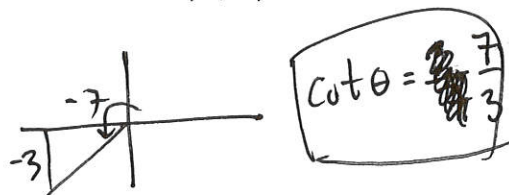


Pythagorean Triples.

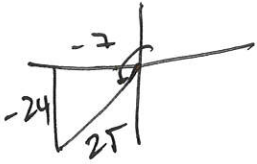
9. If  $(-5, 2)$  is on the terminal side of  $\theta$ , then  $\sin\theta =$



10. If  $(-7, -3)$  is on the terminal side of  $\theta$ , then  $\cot\theta =$



11. Find all six trigonometric functions if  $\tan \theta = \frac{24}{7} = y$  and  $\theta$  terminates in QIII

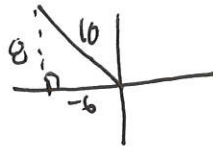


$$\begin{aligned} \sin \theta &= \frac{-24}{25} & \csc \theta &= -\frac{25}{24} \\ \cos \theta &= \frac{-7}{25} & \sec \theta &= -\frac{25}{7} \\ \tan \theta &= \frac{24}{7} & \cot \theta &= \frac{7}{24} \end{aligned}$$

13. Multiply  $(\sin \theta + 4)(\sin \theta + 3) =$

$$\boxed{\sin^2 \theta + 7 \sin \theta + 12}$$

12. Find all six trigonometric functions if  $(-6, 8)$  lies on the terminal side of  $\theta$ .



$$\begin{aligned} 36 + 64 &= 100 & \sin \theta &= \frac{8}{10} = \frac{4}{5} & \csc \theta &= \frac{5}{4} \\ \cos \theta &= \frac{-6}{10} = -\frac{3}{5} & \sec \theta &= -\frac{5}{3} \\ \tan \theta &= \frac{-8}{6} = -\frac{4}{3} & \cot \theta &= \frac{3}{4} \end{aligned}$$

14. Multiply  $(2 \cos \theta + 3)(4 \cos \theta - 5) =$

$$\boxed{8 \cos^2 \theta + 2 \cos \theta - 15}$$

Add, Subtracting  
Multiply, Dividing  
Trig Identities

15. Subtract  $\frac{1}{\csc \theta} - \frac{1}{\sec \theta}$

$$\boxed{\frac{\csc \theta - \sec \theta}{\csc \theta \sec \theta}}$$

16. Multiply  $(1 + \sec \theta)(1 - \sec \theta)$

$$\begin{aligned} 1 - \sec^2 \theta &= -(\sec^2 \theta - 1) \\ &= \boxed{-\tan^2 \theta} \end{aligned}$$

17. Add  $\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta}$$

$$\frac{1}{\sin \theta \cos \theta} = \csc \theta \sec \theta$$

18. Subtract  $\frac{\sin \theta}{\cos \theta} - \frac{1}{\sin \theta}$

$$\boxed{\frac{\sin \theta \cos \theta - 1}{\sin \theta}}$$

On problems #19-26, prove following statements by transforming the left side of the equation to be equivalent to the right side. You may do the fourth as bonus after you finish the rest of the test.

19.  $\frac{\csc \theta}{\cot \theta} = \sec \theta$

$$\frac{\frac{1}{\sin \theta}}{\frac{\cos \theta}{\sin \theta}} = \frac{1}{\cos \theta} = \boxed{\sec \theta = \sec \theta}$$

20.  $\sin \theta \tan \theta + \cos \theta = \sec \theta$

$$\begin{aligned} \frac{\sin \theta}{1} \frac{\sin \theta}{\cos \theta} + \frac{\cos^2 \theta}{\cos \theta} &= \frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta} = \frac{1}{\cos \theta} = \boxed{\sec \theta = \sec \theta} \end{aligned}$$

21.  $\csc \theta \tan \theta - \cos \theta = \frac{\sin^2 \theta}{\cos \theta}$

$$\begin{aligned} \frac{1}{\sin \theta} \frac{\sin \theta}{\cos \theta} - \frac{\cos^2 \theta}{\cos \theta} &= \frac{1 - \cos^2 \theta}{\cos \theta} \\ &= \frac{\sin^2 \theta}{\cos \theta} = \frac{\sin^2 \theta}{\cos \theta} \end{aligned}$$

23.  $(1 - \cos \theta)(1 + \cos \theta) = \sin^2 \theta$

$$1 - \cos^2 \theta = \boxed{\sin^2 \theta = \sin^2 \theta}$$

22.  $\frac{\cos \theta}{\sec \theta} = \cos^2 \theta$

$$\frac{\cos \theta}{\frac{1}{\cos \theta}} = \cos^2 \theta = \boxed{\cos^2 \theta = \cos^2 \theta}$$

24.  $\frac{\csc \theta \tan \theta}{\sec \theta} = 1$

$$\frac{\frac{1}{\sin \theta} \frac{\sin \theta}{\cos \theta}}{\frac{1}{\cos \theta}} = \frac{\frac{1}{\cos \theta}}{\frac{1}{\cos \theta}} = \boxed{1 = 1}$$

25.  $(\cos \theta + \sin \theta)^2 - 1 = 2 \sin \theta \cos \theta$

$\cancel{\cos^2 \theta} + 2 \cos \theta \sin \theta + \cancel{\sin^2 \theta} - 1 =$   
 $\boxed{2 \sin \theta \cos \theta = 2 \sin \theta \cos \theta}$

26.  $\sin \theta (\csc \theta + \cot \theta) = 1 + \cos \theta$

$\sin \theta \left( \frac{1}{\sin \theta} + \frac{\cos \theta}{\sin \theta} \right)$   
 $\boxed{1 + \cos \theta = 1 + \cos \theta}$

27. Evaluate  $(\tan 45^\circ + \tan 60^\circ)^2$

$(1 + \sqrt{3})^2 (1 + \sqrt{3}) =$   
 $1 + 2\sqrt{3} + 3 =$   
 $\boxed{4 + 2\sqrt{3}}$   $\sin \theta$   $30^\circ$   $\frac{1}{2}$

28. Evaluate  $(2 \cos 30^\circ)$

$2 \frac{\sqrt{3}}{2} = \boxed{\sqrt{3}}$

29. Evaluate  $(5 \sin^2 30^\circ)$

$5 \left(\frac{1}{2}\right)^2 = \boxed{\frac{5}{4}}$

30. Evaluate  $\sin^2 60^\circ + \cos^2 60^\circ = 1$

$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{1}{2}\right)^2 = 1$   
 $\frac{3}{4} + \frac{1}{4} = \boxed{1}$

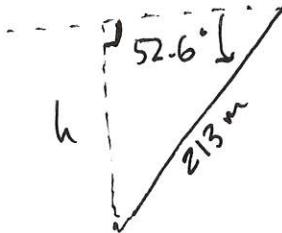
31. Find  $\theta$  if  $\sin 10^\circ = \cos \theta$ .

$\boxed{\theta = 80^\circ}$

32. Find  $\theta$  if  $\tan(90^\circ - y) = \cot \theta$

$\boxed{\theta = y}$

32. A man climbs 213m up the side of a pyramid and finds the angle of depression to his starting point is  $52.6^\circ$ . How high off the ground is he?

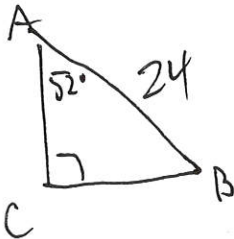


$\sin 52.6^\circ = \frac{h}{213}$

$\boxed{h = 169.21 \text{ m}}$

$\sin \theta = \frac{\text{opp}}{\text{Hyp}}$   
 $\cos \theta = \frac{\text{Adj}}{\text{Hyp}}$

33. In triangle ABC with  $C = 90^\circ$ , find all parts of the triangle if  $c = 24 \text{ cm}$  and  $A = 52^\circ$ .



$\cos 52^\circ = \frac{\text{Adj}}{24}$

$\boxed{b = 14.776}$

$\boxed{B = 38^\circ}$

$\sin 52^\circ = \frac{\text{opp}}{24}$

$\boxed{a = 18.912}$