

**Teacher: Mr. Whetstone**

**Class: Algebra 2 Pre-AP**

**Periods: 4 and 5**

**Assignment: Week of 11 May  
& 18 May**

If turning in paper packet and work, make sure to include this header information on all pages!

From the Student:

Student Name

Teacher Name

Name of class

Period #

OTL #

### **Distance Learning: Week of 11 May & 18 May 2020:**

Assignments are accessible through YouTube videos. I will post the YouTube url's each day through the Remind app. You can also receive them by e-mail. Work can be submitted through Remind and e-mail, which I highly encourage. You can sign up for Remind by texting the message @whet-alg2 to the number 81010. You can also contact me through e-mail at [swhetstone@tusd.net](mailto:swhetstone@tusd.net).

My office hours are 10 am – 12 pm, M–F. You can contact me with questions either through Remind or by e-mail. Please check your Remind messages regularly.

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### **Topic: Unit Circle Trigonometry & Trig. Functions**

#### **Monday: 11 May 2020**

Lesson 18.1

OTL#153

pg. 881-882, #1-6 (*Graph at least two cycles*)

#### **Tuesday: 12 May 2020**

Lesson 18.1

OTL#154

pg. 882-887, #7-15, 17, 24

#### **Wednesday: 13 May 2020**

Lesson 18.3

OTL#155

Graphing the General Sine & Cosine Functions worksheet (see below)

**Thursday: 14 May 2020**

Lesson 18.3  
OTL#156  
pg. 917-920, #5-6, 9-10, 12

**Friday: 15 May 2020**

Lesson 18.2  
OTL#157  
pg. 898-899, #2-5 (*Graph at least three cycles. Do not graph the parent function.*), AND #6-9

**Monday: 18 May 2020**

Lesson 18.3  
OTL#158  
Tangent Functions (Lesson 18.3 Day 3) worksheet (see below)

**Tuesday: 19 May 2020**

Unit 8 Review  
OTL#159  
Unit 8 Review worksheet (see below)

**Wednesday: 20 May 2020**

Lesson 18.5  
OTL#160  
Trig. Equations #1 worksheet (see below)

**Thursday: 21 May 2020**

Lesson 18.5  
OTL#161  
Trig. Equations #2 worksheet (see below)

**Friday: 22 May 2020**

Lesson 18.5  
OTL#162  
Trig. Equations #3 worksheet (see below)

Other resources that can help are...

Khan Academy videos on unit circle trigonometry & trig. functions.

YouTube videos on unit circle trigonometry & trig. functions.

“Algeomulus Prep. Academy” videos (West High, student-made!!).

<https://youtu.be/M2Y1ISB1vaE>

**Graphing General Sine & Cosine Functions**

Identify  $a$ ,  $b$ ,  $h$ , and  $k$ . Identify the period, amplitude, midline, and maximum and minimum values of the graph. Then graph at least two cycles of the function.

1.  $g(x) = -3 \sin(x + \pi) + 1$

2.  $g(x) = 2 \cos 3x + 1$

3.  $g(x) = 3 \sin \frac{\pi}{2}(x - 2) + 3$

4.  $g(x) = 4 \cos \frac{1}{2}(x + 3\pi) - 3$

## Tangent Functions (Lesson 18.3 Day 3)

For each function, identify the period, the midline, and the two “main” asymptotes. Then graph at least 3 cycles of the function.

1.  $g(x) = 3 \tan \frac{1}{2}(x + 3\pi) - 2$

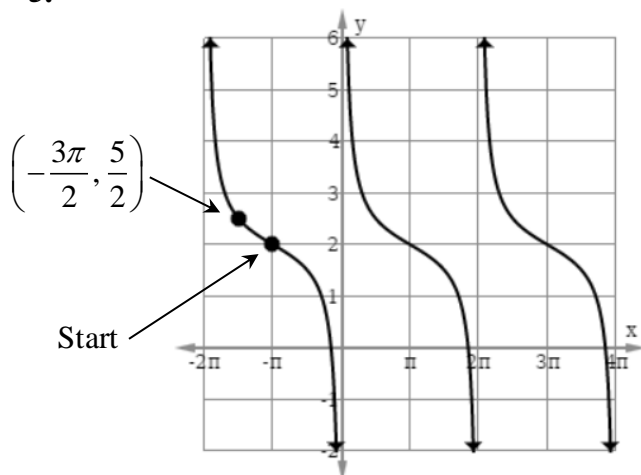
2.  $g(x) = \frac{1}{2} \tan 2(x - \pi) + 3$

3.  $g(x) = -3 \tan \frac{1}{3}\left(x - \frac{3\pi}{2}\right) + 4$

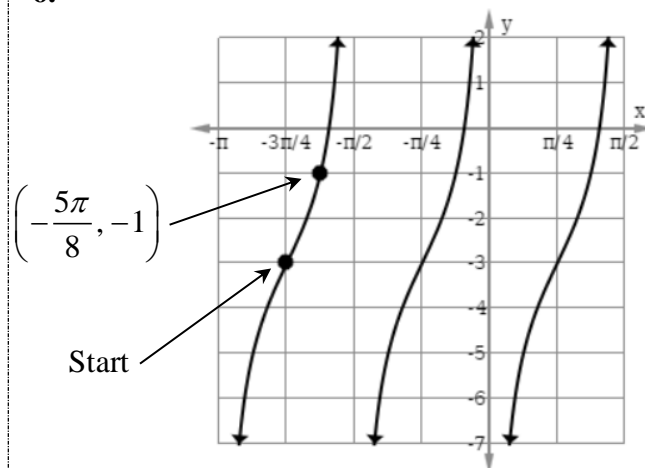
4.  $g(x) = \frac{1}{2} \tan \frac{1}{3}(x + 2\pi) + 2$

Write an equation for each graph. Use the indicated point as the “starting” point.

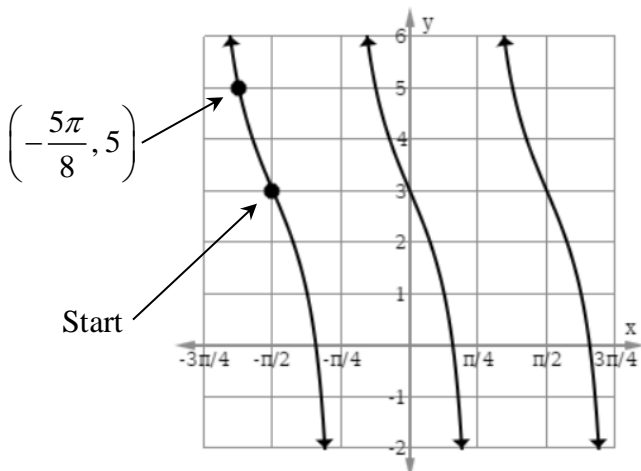
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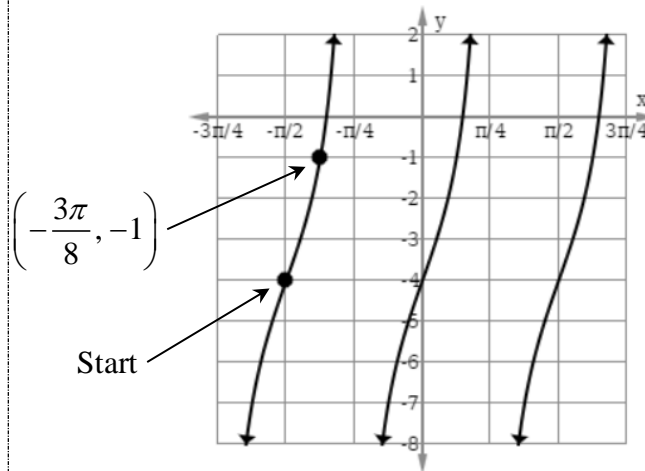
6.



7.



8.



## Unit 8 Review

**SHOW ALL WORK ON SEPARATE PAPER!!**

<b>Some useful items</b>	$s = r\theta$	$x = r \cos \theta$	$y = r \sin \theta$	$\tan \theta = \frac{\sin \theta}{\cos \theta}$	$\sin^2 \theta + \cos^2 \theta = 1$
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Convert the radian measure to degree measure. Then calculate the arc length, rounding to the nearest hundredth. Assume a circle with radius 11.2 feet.

1.  $\frac{3\pi}{5}$

2.  $\frac{20\pi}{9}$

An amusement park ride carries riders in a circle with a radius of 9.3 meters and makes 5 revolutions for each ride. A rider makes a full revolution once every 13 seconds.

3. How far does a rider travel during one revolution?
4. What size angle, in degrees, does a rider travel in about 7.1 seconds?
5. What is the angular velocity of a rider in meters/second?
6. How far does a rider travel when traveling an angle of  $200^\circ$ .

Convert the degree measure to radian measure. Then calculate the arc length, rounding to the nearest hundredth. Assume a circle with radius 6.7 meters.

7.  $105^\circ$

8.  $50^\circ$

Identify the reference angle. Then evaluate the trigonometric function. Be sure to show how you determined the answer.

9.  $\sin\left(-\frac{19\pi}{6}\right)$

10.  $\cos 870^\circ$

11.  $\tan \frac{11\pi}{6}$

12.  $\sin 810^\circ$

13.  $\cos\left(-\frac{11\pi}{4}\right)$

14.  $\tan (-945^\circ)$

Use the given value of  $\sin \theta$  to find the approximate value of  $\cos \theta$  in the quadrant indicated.

15.  $\sin \theta = 0.985$  where  $0 < \theta < \frac{\pi}{2}$

16.  $\sin \theta = -0.996$  where  $\pi < \theta < \frac{3\pi}{2}$

Use the given value of  $\cos \theta$  to find the approximate value of  $\sin \theta$  in the quadrant indicated.

17.  $\cos \theta = -0.259$  where  $\frac{\pi}{2} < \theta < \pi$

18.  $\cos \theta = 0.174$  where  $\frac{3\pi}{2} < \theta < 2\pi$

What can you conclude if the only information you are given is that  $\tan \theta = -3.145$ ? Answer True or False for each statement.

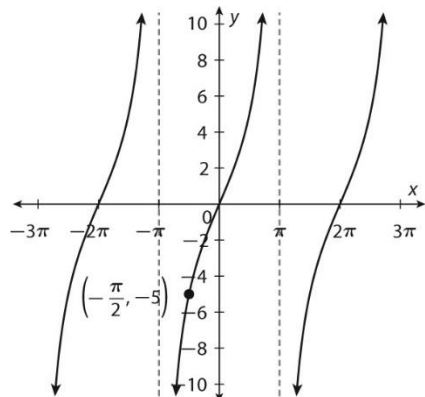
19. The terminal side of the angle must be in Quadrant IV.
20. The value of  $\sin \theta$  must be less than the value of  $\cos \theta$ .
21. The value of  $\cos \theta$  must be positive.
22. If  $\sin \theta$  is positive, then  $\cos \theta$  must be negative.

23. Determine  $\cos \theta$  given that  $\tan \theta = -3.73$  and  $\sin \theta = -0.259$ .

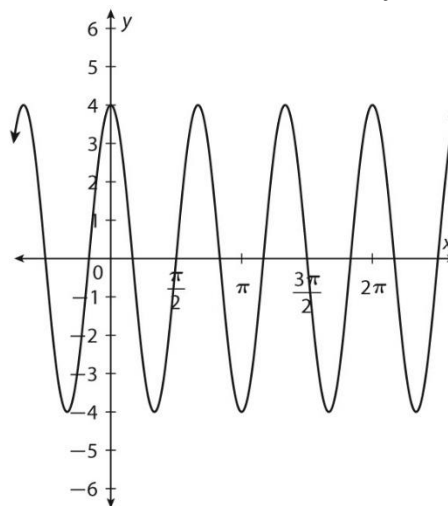
24. Determine  $\sin \theta$  given that  $\tan \theta = -0.268$  and  $\cos \theta = 0.259$ .

Write the function rule for the transformed trig function shown. **Functions should only have  $a$  and  $b$  values.**

25.



26.



Graph each function. Identify all the key features of the function.

27.  $g(x) = -2 \sin \frac{1}{4}(x - 3\pi)$

28.  $f(x) = 2 \tan(x + \pi) - 3$

29.  $g(x) = 3 \cos 2\left(x + \frac{\pi}{2}\right) + 1$

## Algebra 2 Pre-AP

### Trig. Equations #1

**DO NOT WRITE ON THIS FORM!!**

Solve each equation in the interval  $0 \leq x < 2\pi$ .

1.  $2 \cos x + 6 = 5$

2.  $6 \sin x - 3\sqrt{2} = 0$

3.  $3 \tan x + \sqrt{3} = 0$

4.  $5 \cos x - \sqrt{3} = 3 \cos x$

5.  $\tan x + 5 = 4$

6.  $4 \sin^2 x - 3 = 0$

7.  $4 \cos^2 x - 6 = -4$

8.  $\tan^2 x + 5 = 8$

**Algebra 2 Pre-AP****Trig. Equations #2****DO NOT WRITE ON THIS FORM!!**

Solve each equation in the interval listed.

1.  $2 \cos x + 1 = 0$   $[0, \pi)$

2.  $2 \sin x + \sqrt{2} = 0$   $\left[0, \frac{3\pi}{2}\right)$

3.  $\tan x + \sqrt{3} = 0$   $[-\pi, \pi)$

4.  $2 \cos x + \sqrt{3} = 0$   $[0, 3\pi)$

5.  $4 \cos^2 x = 1$   $[-\pi, \pi]$

6.  $5 \tan x - \sqrt{3} = 2 \tan x$   $\left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$

7.  $4 \cos^2 x + 5 = 9$   $[-\pi, \pi)$

8.  $4 \sin^2 x + 7 = 8$   $[\pi, 2\pi)$



## Algebra 2 Pre-AP

### Trig. Equations #3

**DO NOT WRITE ON THIS FORM!!**

Solve each equation in the interval listed.

1.  $2\sin^2 x + \sin x = 0$   $(-\pi, \pi]$

2.  $\sin^2 x \cos x = 4\cos x$   $[-\pi, \pi]$

3.  $2\sin x \cos x = \sqrt{2}\cos x$   $\left[-\frac{\pi}{2}, \pi\right)$

4.  $2\sin^2 x - \sin x - 1 = 0$   $\left(0, \frac{3\pi}{2}\right]$

5.  $\tan^2 x + \tan x = 0$   $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right]$

6.  $\sqrt{2}\sin x \cos x + \sin x = 0$   $\left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$

7.  $2\cos^2 x - 3\cos x + 1 = 0$   $\left[0, \frac{5\pi}{2}\right)$

8.  $\tan^3 x - \tan x = 0$   $[0, 2\pi]$