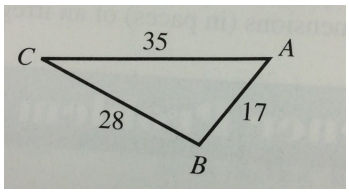
Name: Class Period:

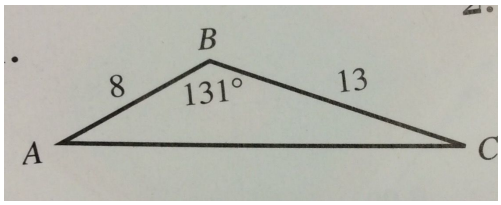
SM3 Worksheet 6.G ~ Law of Sines & Law of Cosines

1- Find the lengths of all missing sides or angles.

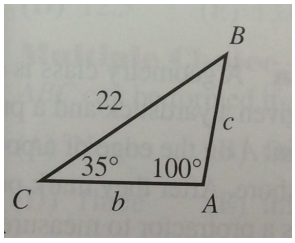
1.



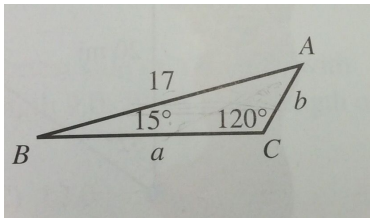
2.



3.



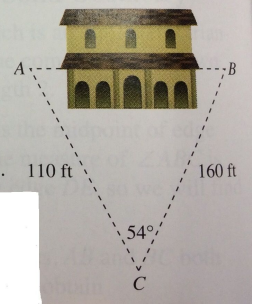
4.



5.

Measuring Distance Indirectly

Juan wants to find the distance between two points A and B on opposite sides of a building. He locates a point C that is 110 ft from A and 160 ft from B, as illustrated in the figure. If the angle at C is 54°, find distance AB.



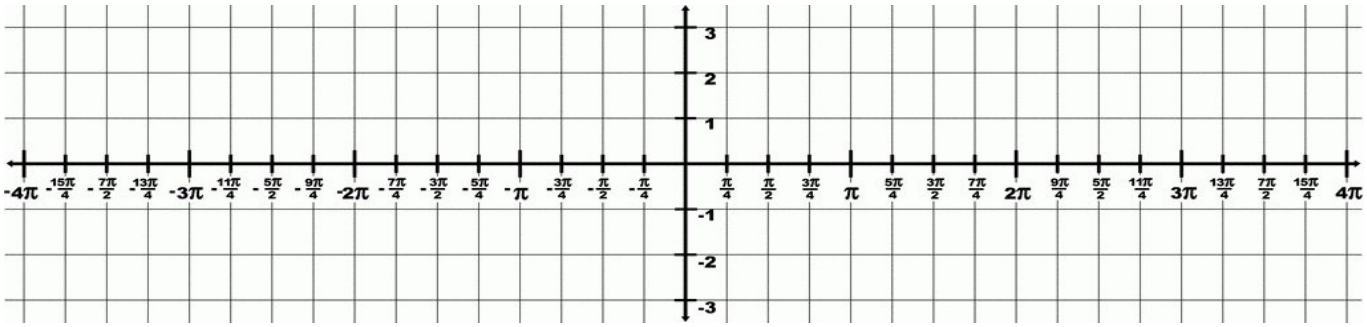
6. Two lighthouses A and B are known to be exactly 20 miles apart on a North-South line. A ship's captain at S measures ∠ASB to be 33°. A radio operator at B measures ∠ABS to be 52°. Find the distance from the ship to each lighthouse.

7. A ferris wheel has a diameter of 80 feet. The center axle is 70 ft above the ground. It makes 1 revolution every 3 minutes. What is the equation for this situation?

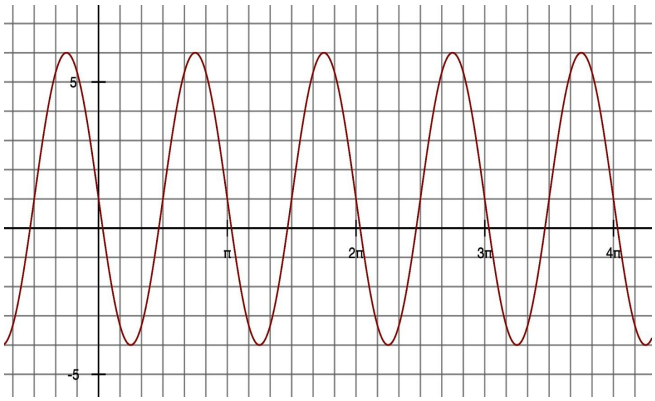
What will be the height at 30 seconds?

8. Graph 2 cycles for the graph of the Ferris Wheel. Label Graph appropriately.

9. Graph $g(x) = -\cos 3\theta - 2$ (Graph at least 2 full cycles)



10. Find the equation for the following graph:



11. Find the Solutions between
$0^o - 360^o$, *and* $0 - 2\pi$.

$2sinx = -\sqrt{3}$

12. Solve for L, $m = \dfrac{F(L-x)}{x}$

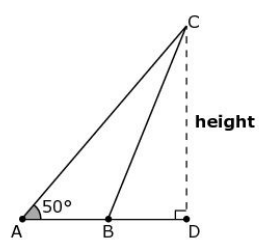
13. Use a calculator to determine how many real and complex solutions the following polynomial has.
$f(x) = x^4 - 7x^3 + 14x^2 - 28x + 40$

Is the above even odd or neither?

14. Find all six trig functions for $\frac{5\pi}{3}$.

15.

AB is 4 cm, AC is 12 cm, and the area of Δ ABC $\approx 18.38\,\text{cm}^2$.



What is the best approximation of the height of the triangle from the point C to the base $\overline{AD}$?

(A) 9.2 cm
(B) 7.7 cm
(C) 3.1 cm
(D) 2.6 cm