

Math Grades 5 – 9
Unit Conversion/Scale Drawings
Reading Level: 10.5

MA.5.G.5.2
 MA.7.A.1.6
 MA.7.G.5.4
 MA.8.G.5.1
 MA .912.A.1.5

“He Laughed at the Word ‘Impossible’”

Karl H. Grismer

Activity:

1. The following is a quote from the article. *“Can’t you see the answer?” asked one of the men. “Can’t you see that a bridge across Old Tampa Bay is almost indispensable? Look how much distance it would cut off. Nearly fifty miles by land-by bridge it would only be nineteen or twenty miles. Think what that would mean to this section of the state!”* The man is stating that it would save a driver approximately 30 miles of driving if he could cross the bay on a bridge, rather than going around it. Complete the table to show the conversion of 30 miles to other units of measure.

Feet	Yards	Miles	Meters	Kilometers
		30		

2. The following is another quote from the article. *“But, strange as it may seem, that bridge which Gandy dreamed of twenty years ago is today an actuality. Across the waters of Old Tampa Bay it extends-five and three-quarters miles of it, a slender finger of sand and concrete and steel that binds together the shores of Pinellas and Hillsborough Counties.”* Complete the table to show the conversion of 5.75 miles to other units of measure.

Feet	Yards	Miles	Meters	Kilometers
		5.75 (5 $\frac{3}{4}$)		

3. This quote also refers to a unit of measure that can be converted. Complete the table to show the conversion of 400 feet to the other units of measure. *“The grant was finally made on February 11, 1918. About this same time, a number of bills permitting construction work and granting a 400-foot right of way for all time across the bay, were pushed through the Florida Legislature and the last governmental obstacle was overcome.”*

Feet	Yards	Miles	Meters	Kilometers
400				

4. Use the following quote to make the conversions in the table. *“Upon this natural rock foundation it was decided to erect a concrete bridge. This deeper water across the middle of the bay showed an average depth of ten and one-half feet, with a maximum depth of 23 feet at the main channel, where the draw-bridge now stands.”*

Feet	Yards	Miles	Meters	Kilometers
10.5 (10 $\frac{1}{2}$)				
23				

5. If the speed limit going over the Gandy Bridge is posted to be 50mph, convert that to feet per second.

6. If the architectural drawing (blueprint) of the bridge used a scale of 1 inch = 25 feet, how many inches would the right of way quoted below be on the blueprint? Explain your answer.

“About this same time, a number of bills permitting construction work and granting a 400-foot right of way for all time across the bay, were pushed through the Florida Legislature and the last governmental obstacle was overcome.”

7. Apply the same scale used in problem number 6 (1 inch = 25 feet) to find out the length of the opening of the draw bridge on the drawing in the following quote, *“Over the main channel near the eastern end of the bridge stands a steel double bascule draw bridge, with a clear opening of 75 feet, for the passage of ships.”* Explain your answer.

8. Use the information found in the following quote at the end of the article. Complete the conversions below. *“Statistics make dry reading, perhaps, but only through figures can the magnitude of the Gandy Bridge job be truly shown. More than 1,600 cars of equipment and materials were shipped into Ganbridge before the structure was completed. Here are the quantities of some of the materials used: 170,000 sacks of cement, 30,000 tons of gravel, 15,000 tons of sand, 3,500 tons of steel, 1,500,000 feet of lumber, 7,000 tons of rock, 1,125,000 brick, 75,000 feet of electric cable, hundreds of thousands of feet of wire, 50,000 feet of water pipe, 40,000 gallons of gasoline, 30,000 gallons of fuel oil, 2,500 tons of coal and 9,000 gallons of lubricating oil.”*

30,000 tons of gravel = _____ pounds

15,000 tons of sand = _____ pounds

1,500,000 feet of lumber = _____ yards

7,000 tons of rock = _____ pounds

75,000 feet of electric cable = _____ miles

50,000 feet of water pipe = _____ inches

40,000 gallons of gasoline = _____ quarts

30,000 gallons of fuel oil = _____ pints