winmath
Career Infused Capstone Projects

Name:

Community Stakes Final Report

For your final report, you will graph the locations of buildings, parking lots, and roads for the new town complex. Be sure to label the structures, the coordinates of each reference point, and the dimensions of the structures. Finally, categorize the shape of the different structures, understanding that a building may be placed in more than one category.

Question 1

a. Which route represents the *x*-axis for the town complex?

b. Which route represents the *y*-axis for the town complex?

c. If a reference marker is 60 feet east of the Route 25 and 150 feet north of Route 42, what are its coordinates on the graph?

Question 2

Drake is learning to position reference markers on a building site and needs your help to understand coordinates. Drake places the first reference marker for a rectangular building at (24, 39). The second reference marker for the building should be placed 15 units due south of the first. Explain how Drake can find the *x*- and *y*- coordinates of the second marker without counting ticks on the grid.

Question 3 – Use the data for the police station to complete the following.

Southwest corner is 30 feet north of Route 42 and 40 feet East of Route 25, facing Route 42.

The police station plans show that building will be 70 feet long x 100 feet wide, with the shortest side along Route 42.

a. What are the coordinates for the reference markers (corners) for the police station?

b. What are the dimensions of the police station? Identify the axis along which each dimension runs.

c. Draw the police station on the graph.
   - Write the coordinates next to each reference marker.
   - Label the building, "Police Station"

Question 4

a. How did you find the point on the graph for the southwest corner of the police station?

b. Given the southwest corner marker point, how did you find the location of the northwest corner of the police station, using the graph?

Fire Station

Question 5-Use the data for the fire station to complete the following.

The southwest corner of the fire station is 80 feet east of Route 25 and 200 feet north of Route 42. The fire station faces Route 25.

The fire station plans show that the building will be 60 feet wide x 170 feet long, with the longest side along Route 25.

a. What are the coordinates for the reference markers for the fire station?

b. Choose the correct words to explain what it means for the southwest corner of the fire station to be at *8, 20) on the graph.

The point is _____ ticks _____ from the *x*-axis and _____ ticks _____ of the *y*-axis.

c. Choose the correct words to explain the location of the southwest reference marker for the fire station on the town complex site.

The marker is located _____ feet _____ of Route 25 and _____ feet ____of Route 42.

d. On your graph, label the coordinates of each reference point for the fire station.

Police Station Parking

Question 6-Use the data for the patrol car parking area to complete the following.

There are two parking areas at the police station. The parking area along the west side of the building is for patrol cars. It is 30 feet wide and runs along the full length of the west side of the building. There will be a 10-foot grassy area between Route 25 and the parking lot. The entrance to the patrol car parking area is along Route 25 at the north end of the parking lot. The entrance is 20 feet wide.

The general parking for the station is located 10 feet from the east side of the building. The southwest corner of located 50 feet from Route 42, and 120 feet from Route 25. It extends north 60 feet and extends east 60 feet. The entrance to the parking lot is on the main roadway into the complex and is 20 feet wide and starts 20 feet north from the southeast corner of the lot.

Draw the patrol car parking area. Label the coordinates of the reference points for the parking area. Label the structure "Patrol Parking."

Question 7-Use the data for the general police parking to complete the following.

a. What are the coordinates for the reference markers for the four corners of the general police parking lot?

b. What are the reference points for the entrance into the parking lot?

c. Draw the general police car parking area. Label the coordinates of the reference points. Label the structure "General Police Parking."

Fire Station Parking
Question 8-Use the data for the general police parking to complete the following.

There is emergency vehicle parking and turnaround space on both the east and west side of the fire station and extends around the south side of the building. The fire station parking plans show that the fire station is north of the police station and west of the town hall parking lot.

There is an entrance into the fire station parking lot along Route 25 that is 30 feet wide and is at the south end of the parking lot.

Remember that Drake placed the first reference marker for a rectangular building at (24, 39). The third reference marker for the building should be placed 8 units due east of the first. Explain how Drake can find the x- and y- coordinates of the third marker without counting ticks on the grid.

Question 9-Use the graph of the fire station parking lot to complete the following.

Label the coordinates of the reference points for the fire station parking lot.

Roadways
Question 10-Use the data for the roadway to complete the following.

The roadway into the complex and main parking areas is located on Route 42 and is 20 feet wide. The main roadway starts 200 feet from the intersection of Route 42 and 25. It travels straight back into the construction site 330 feet ending in a traffic circle with a center point at (21, 36) on the graph. The traffic circle has a center diameter of 20 feet and an exterior diameter of 60 feet.

There are two entrances from the main roadway into the town hall parking lot. Both entrances are 20 feet wide. The entrances onto the parking lots meet the roadway at (22, 22), (22, 24) and (22, 29), (22, 31).

The entrance from the main roadway into the police station parking area is 20 feet long and 20 feet wide. The entrance meets the parking lot entrance at (20, 7) and (20, 9).

a. The center of the traffic circle is _____feet _____of Route 42 and _____ feet_____ of Route 25.

360 | 210 | north | south | east | west

b. How many ticks is the diameter of the outer circle of the traffic circle?

---------- ticks

c. How many ticks is the diameter of the inner circle of the traffic circle?

---------- ticks

d. Draw the main roadway and entrances to the parking areas. Label the coordinates of the reference markers.

e. What are the coordinates for 4 points on the outer edge of the traffic circle?

Question 11

Remember that Drake placed the first reference marker for a rectangular building at (24, 39). The fourth reference marker for the building should be placed 8 units due east and 15 units due south of the first.

Explain how Drake can find the x- and y- coordinates of the fourth marker without counting ticks on the grid.

Structures

Question 12

a. Describe two properties of a shape that classify it as a parallelogram.

b. Are any of the shapes on your blueprint parallelograms? If so, identify which structures are parallelograms. Explain how you know.

Question 13

a. Describe two properties of a shape that classify it as a rhombus..

b. Are any of the shapes on your blueprint shaped like a rhombus? Explain how you know.

Question 14

a. Describe two properties of a shape that classify it as circle.

b. Are any of the shapes on your blueprint circles? Explain how you know.

