



**Mathematics Grade 6
Scoring Guide for
Released Item #56
Johnson Family Hikes
Fall 2005**



MATHEMATICS – GRADE 6: PART 4**FALL 2005****(4 points)**

The Johnson family spent 5 days hiking the High Bridge trail this summer. The trail is 28 miles long. The table shows how much of the trail they had covered by the end of each day.

Johnson Family Hikes

Day	Distance Completed (miles)
Wednesday	4
Thursday	10
Friday	16
Saturday	24
Sunday	28

Make a graph of this information. Be sure to title the graph, label the axes, and choose an appropriate scale.

ANSWER THIS ITEM IN YOUR ANSWER FOLDER.

SHOW ALL YOUR WORK IN YOUR ANSWER FOLDER.

Mathematics Rubric for Johnson Family Hikes

Scoring Rubric:

1 point for appropriate graph with 4-5 points graphed correctly.

- **1 point** for appropriate title on the graph.
- **1 point** for appropriate labels on both axes.
- **1 point** for appropriate scale/spacing on both axes.

Note 1: If the graph includes the differences between the daily distances completed (4, 6, 6, 8, 4) instead of the given distances completed (4, 10, 16, 24, 28), credit for an appropriate graph may be given at any score point if the graph is correct.

Note 2: If the scale includes multiples larger than 10, the scale is not appropriate and credit for scale is not awarded. Credit for graph, title and/or labels may be given if these are appropriate.

A **4-point** response includes four points.

A **3-point** response includes three points.

A **2-point** response includes two points.

A **1-point** response includes one point.

A **0-point** response shows insufficient understanding of the item being tested.

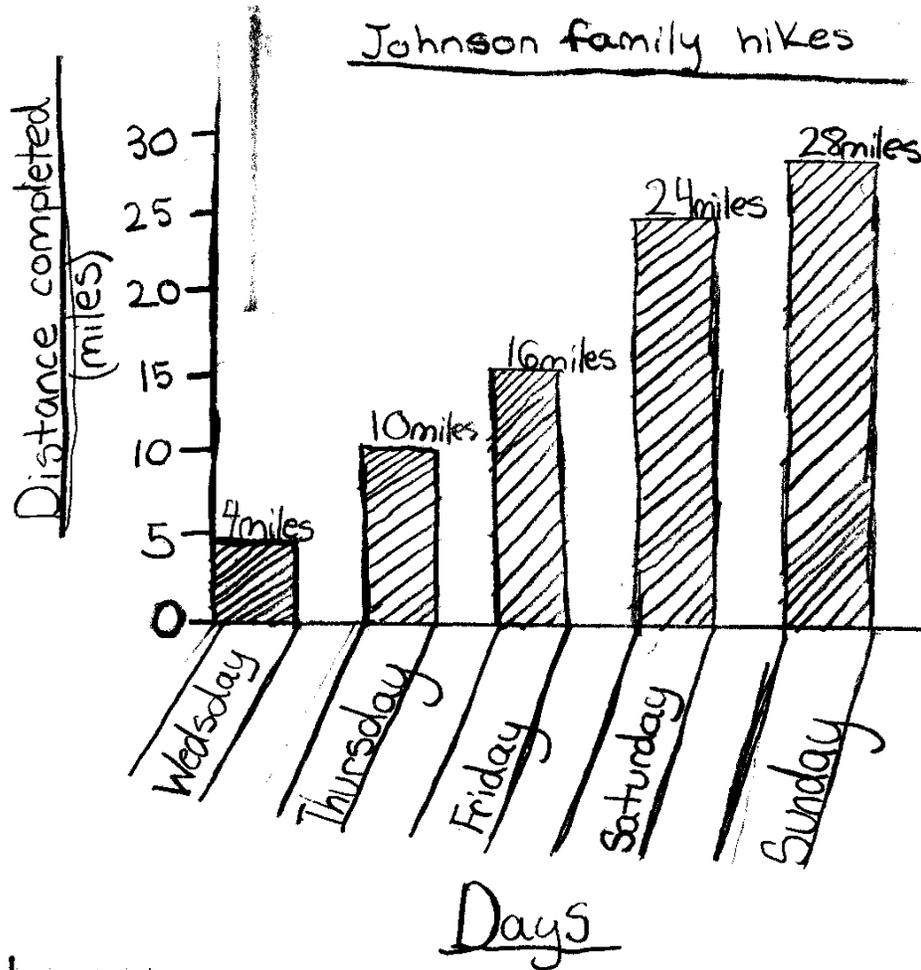
Condition codes for unratable papers (zeroes):

A – Off Topic

B – Written in a Language other than English or Illegible

C – Blank or Refusal to Respond

Sample Paper 1 – Score Point 4



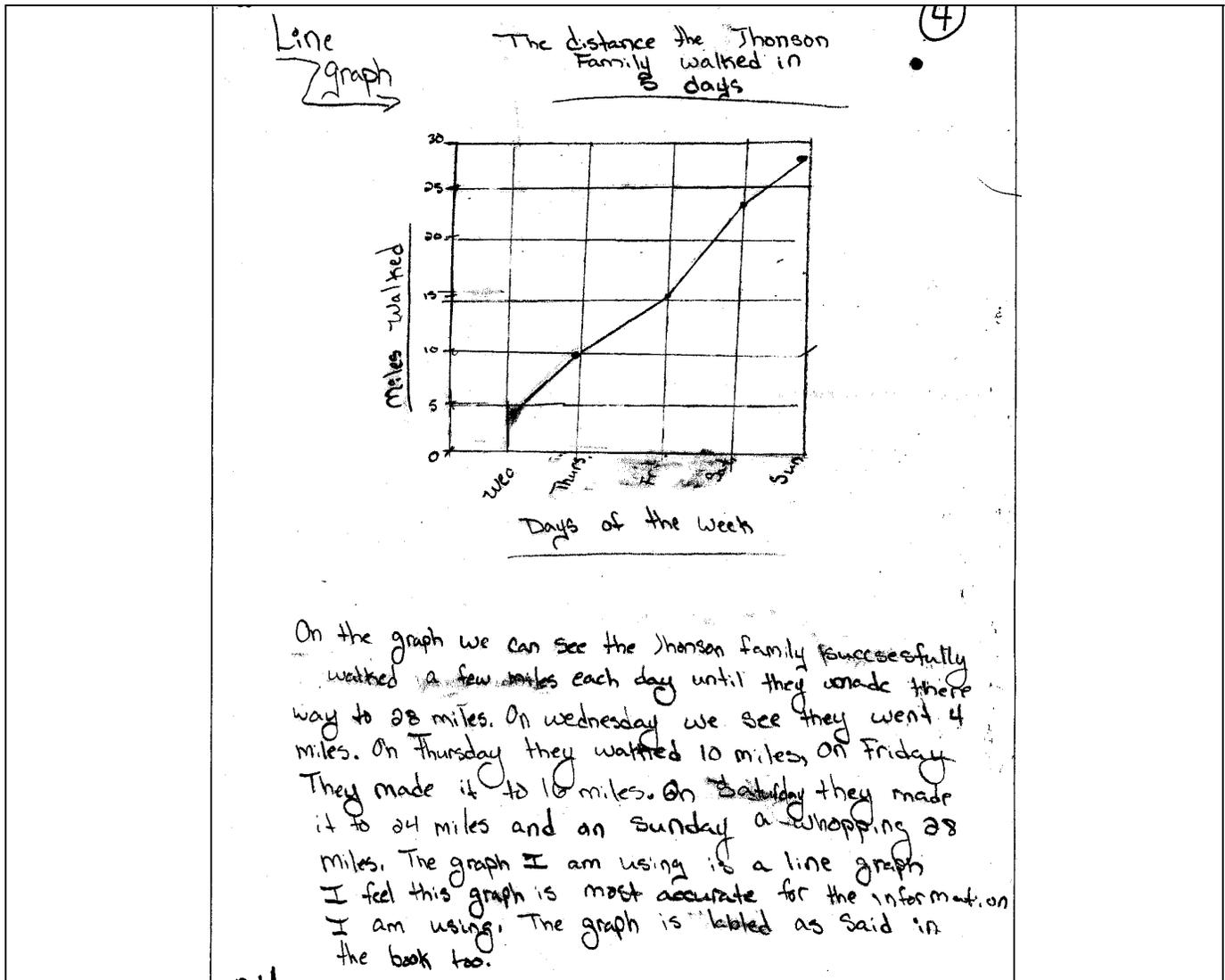
Sample Paper 1 Score Point 4

The response shows complete understanding of the task by creating an appropriate graph and completing all of the graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed. The miles graphed for each day are the cumulative distances hiked. **(1 point)**
- The response has an appropriate title (*Johnson family hikes*). **(1 point)**
- The response has appropriate axis labels: "Distance completed (miles)" on the y-axis and "Days" on the x-axis. The distance unit label of "miles" must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 5 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **4 points**.

Sample Paper 2 – Score Point 4



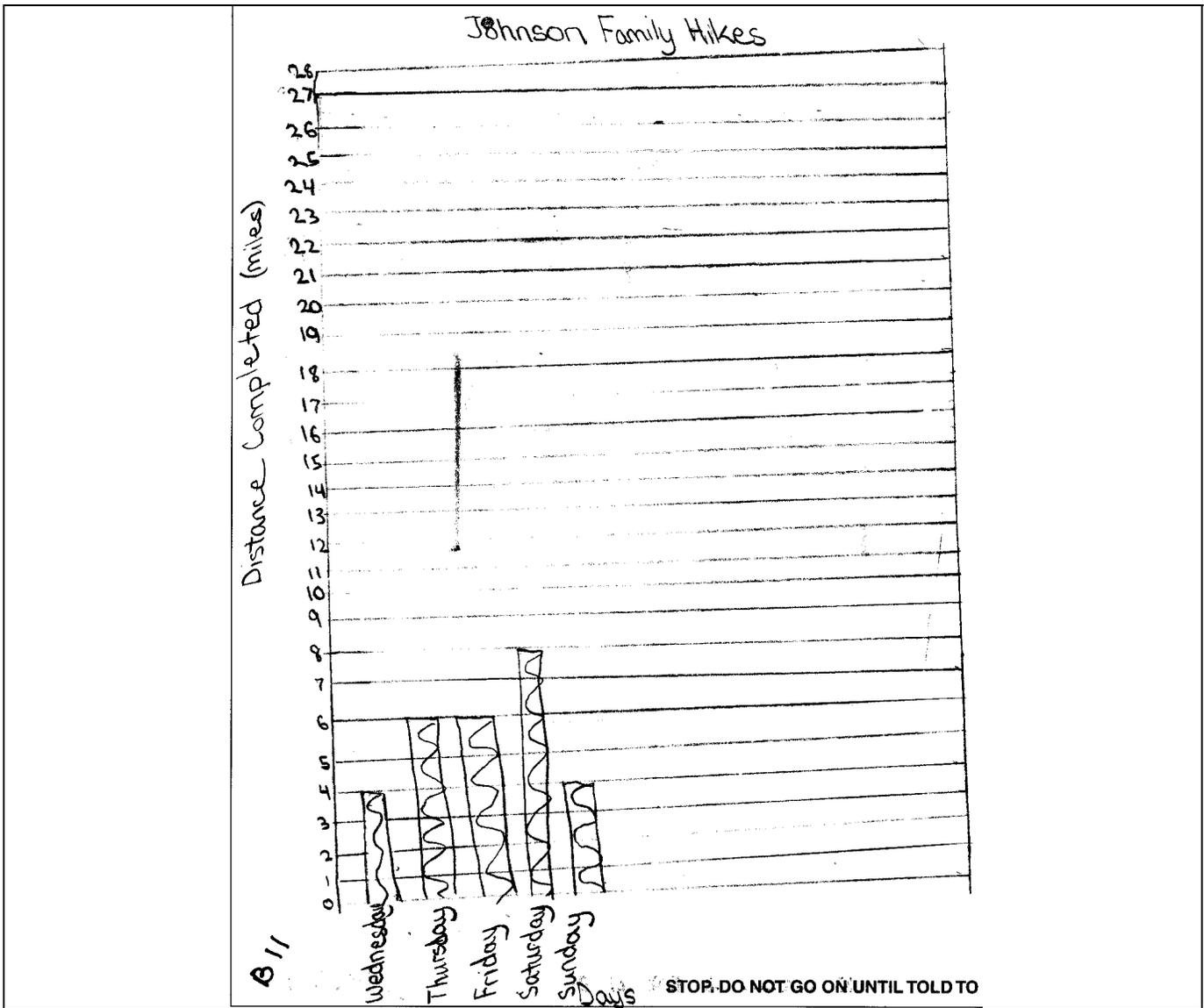
Sample Paper 2 Score Point 4

The response shows complete understanding of the task by creating an appropriate graph and completing all of the graphing requirements.

- The response has a correctly constructed line graph with all five data points correctly graphed and a straight line connecting each point. The miles graphed for each day are the cumulative distances hiked. Time is graphed correctly on the horizontal axis which is necessary on a line graph. **(1 point)**
- The response has an appropriate title (*The distance the Jhonson Family Walked in 8 days*). **(1 point)**
- The response has appropriate axis labels: “Miles Walked” on the y-axis and “Days of the week” on the x-axis. The distance unit label of “miles” must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 5 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **4 points**.

Sample Paper 3 – Score Point 4



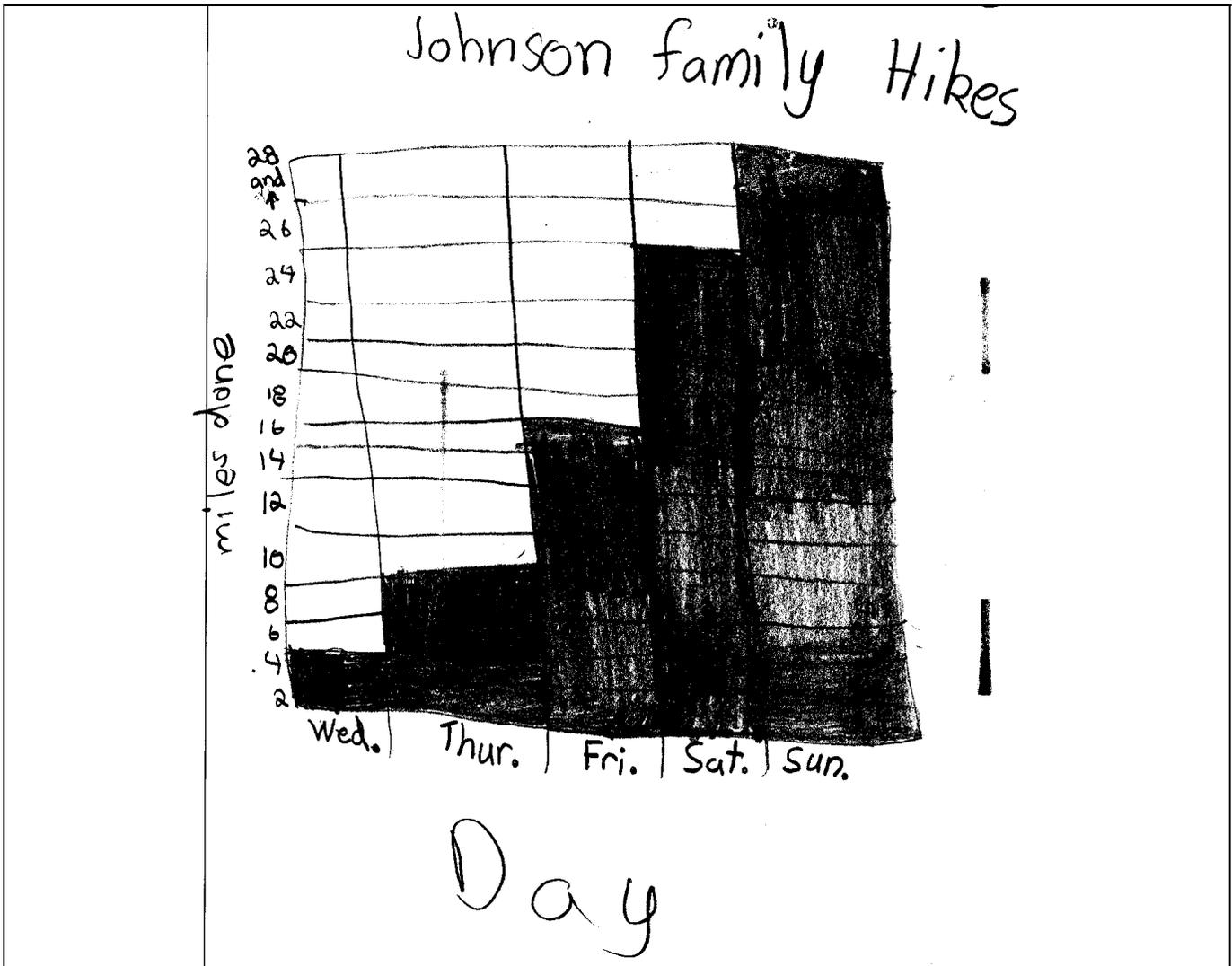
Sample Paper 3 Score Point 4

The response shows complete understanding of the task by creating an appropriate graph and completing all of the graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed. The numbers graphed are the daily distances completed (4, 6, 6, 8, 4). **(1 point)**
- The response has an appropriate title (*Johnson Family Hikes*). **(1 point)**
- The response has appropriate axis labels: “*Distance Completed (miles)*” on the y-axis and “*Days*” on the x-axis. The distance unit label of “miles” must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 1 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. Abbreviations of the days or first initials of each day are acceptable category labels. **(1 point)**

The response earns **4 points**.

Sample Paper 4 – Score Point 4



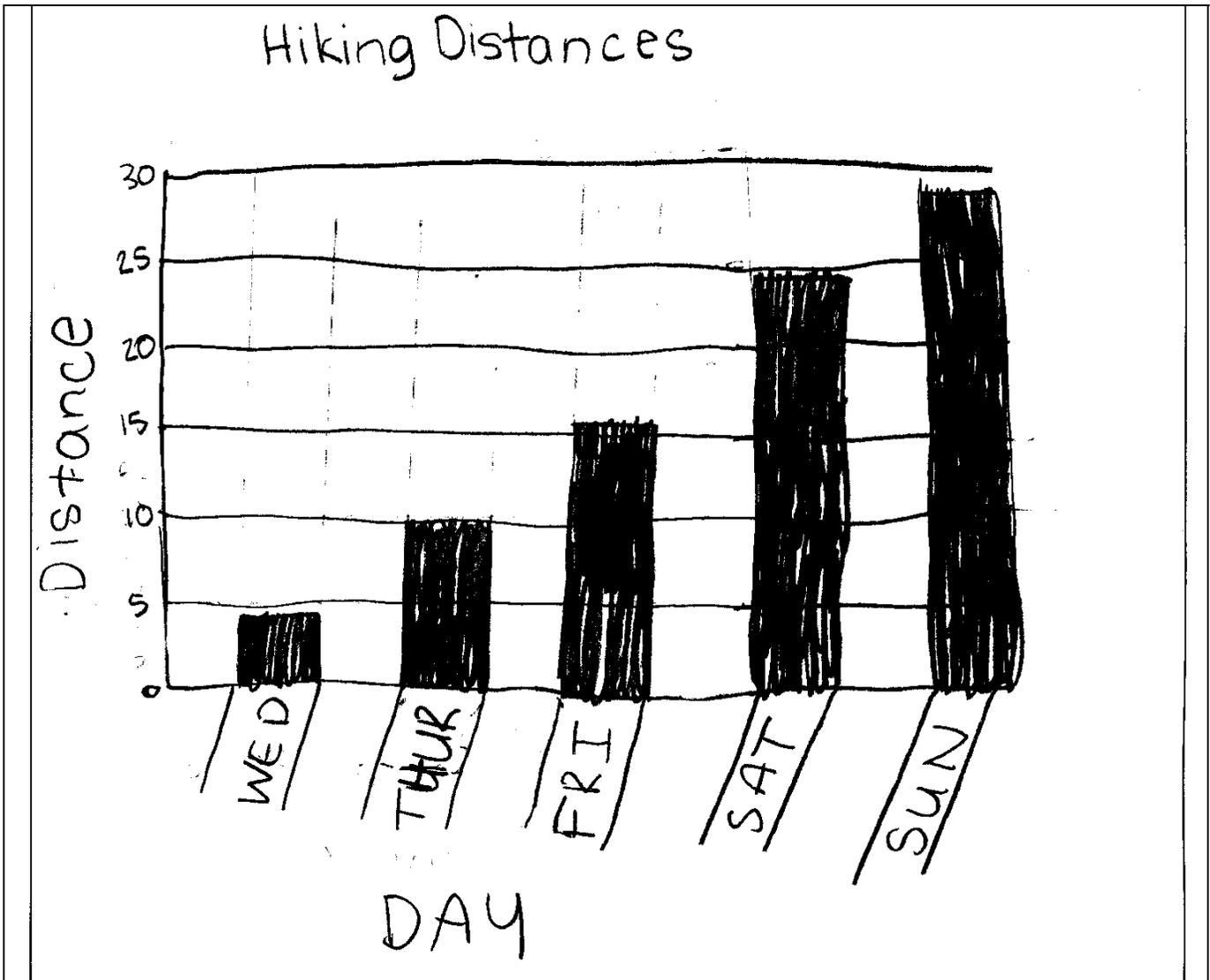
Sample Paper 4 Score Point 4

The response shows complete understanding of the task by creating an appropriate graph and completing all of the graphing requirements.

- The response has a correctly constructed bar graph with four of the five data points correctly graphed. The miles graphed for each day are the cumulative distances hiked. The graph is drawn as a histogram with no space between the bars. It is an acceptable representation for the bar graph. **(1 point)**
- The response has an appropriate title (*Johnson family Hikes*). **(1 point)**
- The response has appropriate axis labels: “miles done” on the y-axis and “Day” on the x-axis. The distance unit label of “miles” must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes an appropriate scale that begins at an implied 0 and goes up in evenly spaced increments of 2 on the y-axis. The scale increments are in spaces rather than on the lines on the y-axis. This space scaling, with data consistently graphed to the line above the number, is acceptable. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **4 points**.

Sample Paper 5 – Score Point 3



Sample Paper 5 Score Point 3

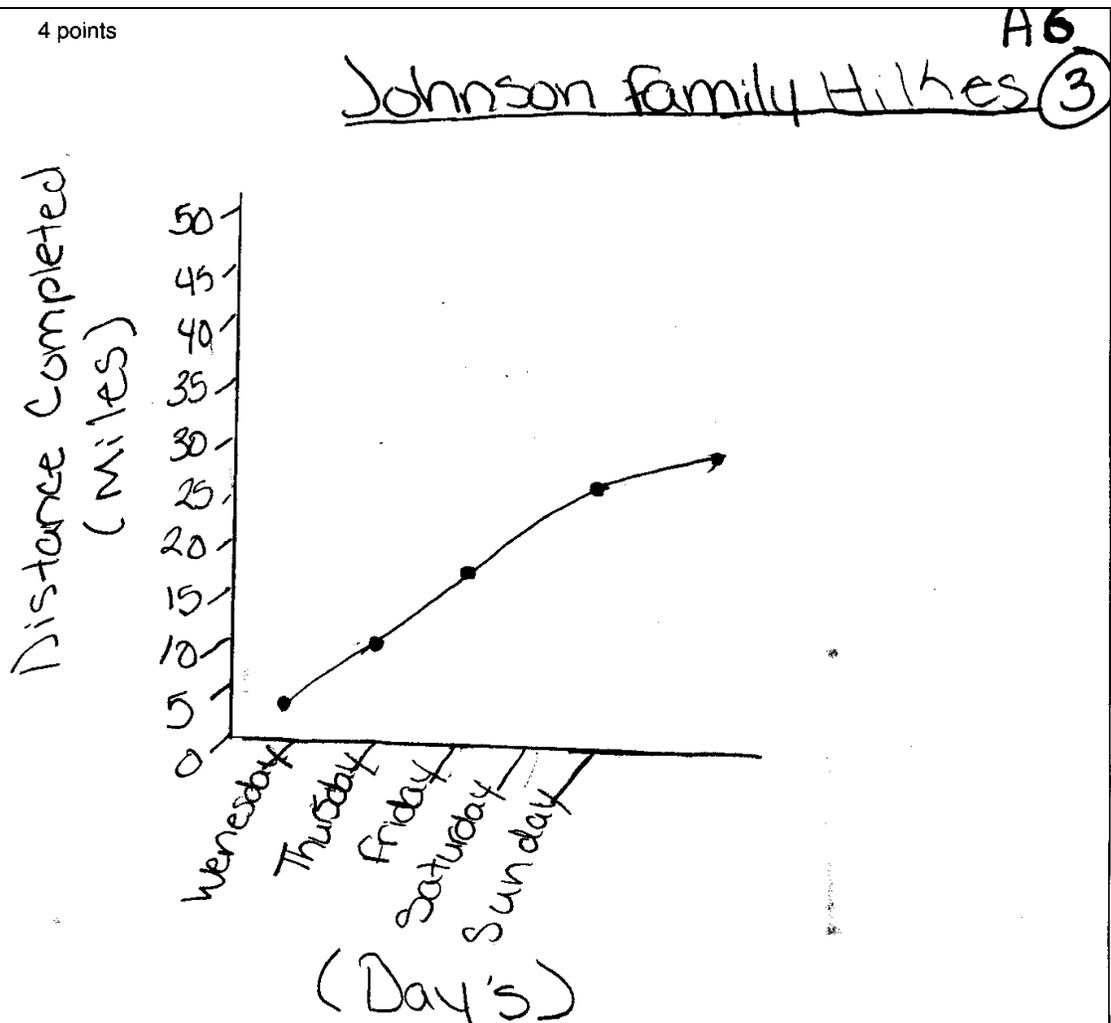
The response shows understanding of the task by creating an appropriate graph and completing four of the five graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed. The numbers graphed are the cumulative total distance hiked for each day. **(1 point)**
- The response has an appropriate title (*Hiking Distances*). **(1 point)**
- The response does not have appropriate axis labels. The distance unit label of miles must be included in an axis label or in the title in order for the graph to be considered correctly labeled. "Miles" is missing from the labels and the title. **(0 points)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 5 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **3 points**.

Sample Paper 6 – Score Point 3

4 points



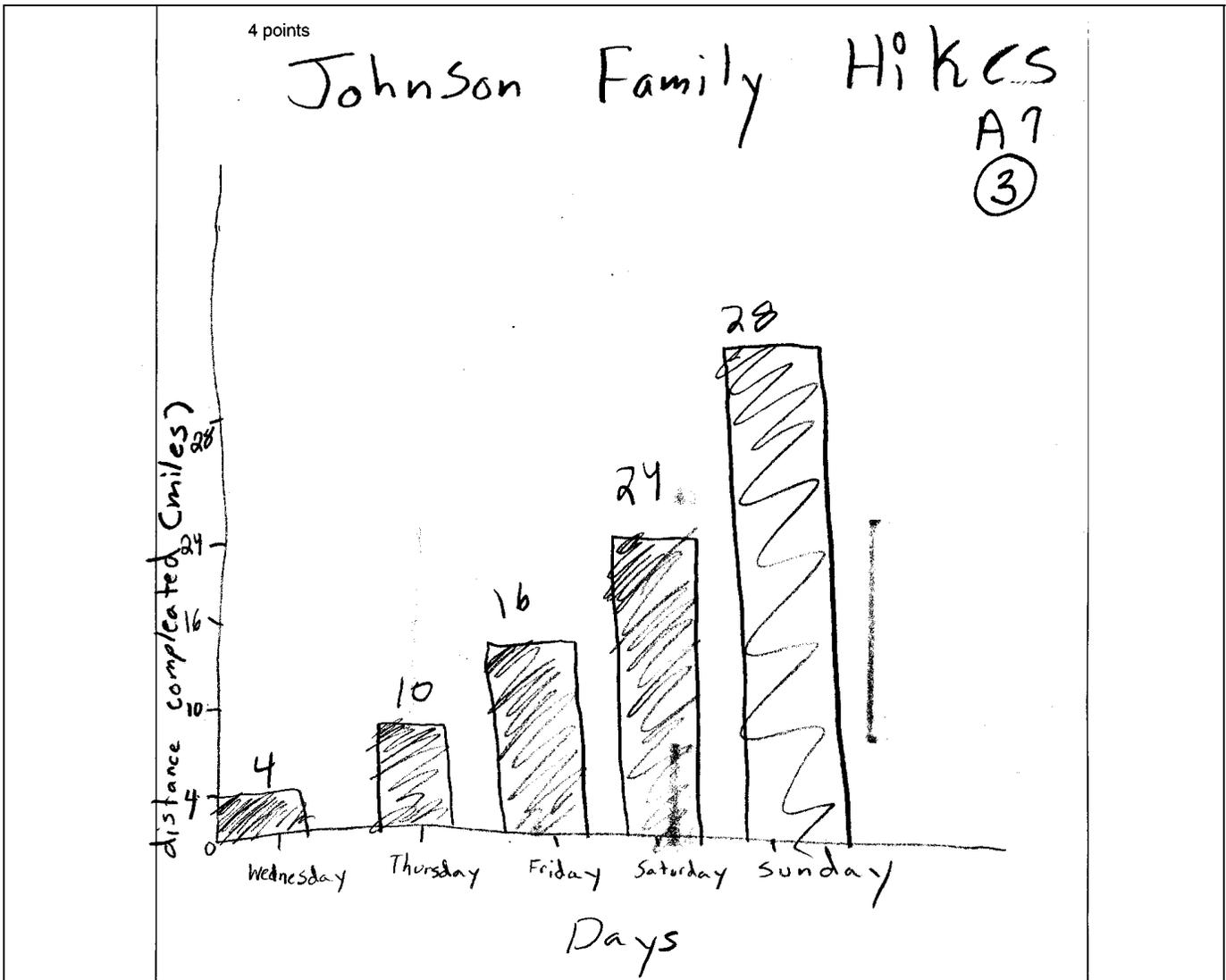
Sample Paper 6 Score Point 3

The response shows understanding of the task by creating an appropriate graph and completing three of the four graphing requirements.

- The response has a correctly constructed line graph with three of the data points correctly graphed and a straight line connecting each point. The two remaining data points are incorrectly graphed because they do not match the days on the horizontal axis. The miles graphed for each day are the cumulative distances hiked. Time is represented correctly on the horizontal axis which is necessary on a line graph. **(0 points)**
- The response has an appropriate title (*Johnson Family Hikes*). **(1 point)**
- The response has appropriate axis labels: “Distance Completed (Miles)” on the y-axis and “Day’s” on the x-axis. The distance unit label of “miles” must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 5 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **3 points**.

Sample Paper 7 – Score Point 3



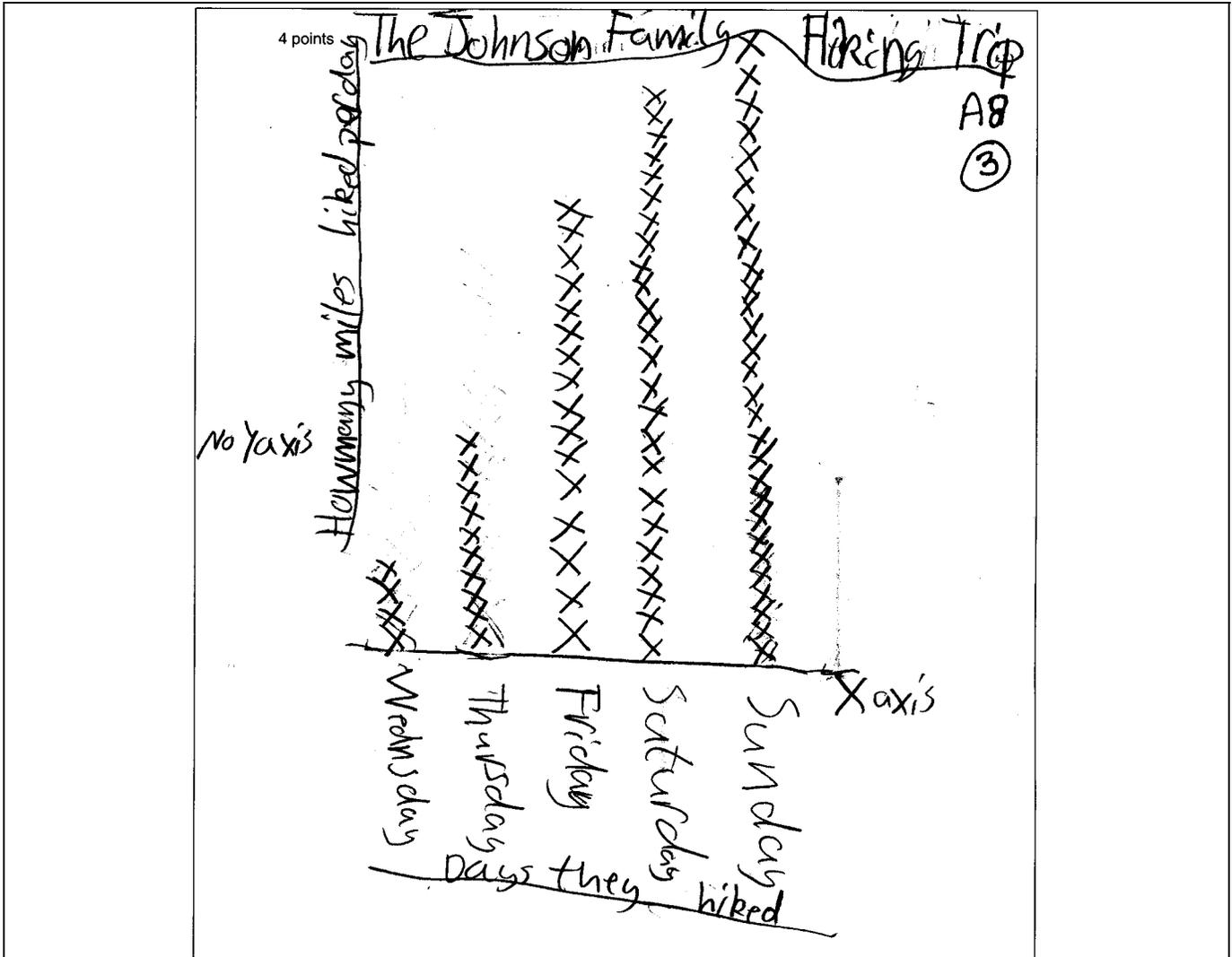
Sample Paper 7 Score Point 3

The response shows understanding of the task by creating an appropriate graph and completing three of the four graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed according to the student's scale. The miles graphed for each day are the cumulative distances hiked. **(1 point)**
- The response has an appropriate title (*Johnson Family Hikes*). **(1 point)**
- The response has appropriate axis labels: "distance completed (miles)" on the y-axis and "Days" on the x-axis. The distance unit label of "miles" must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response includes a scale that begins at 0 and uses increments representing only the data given on the chart in the prompt for the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(0 points)**

The response earns **3 points**.

Sample Paper 8 – Score Point 3



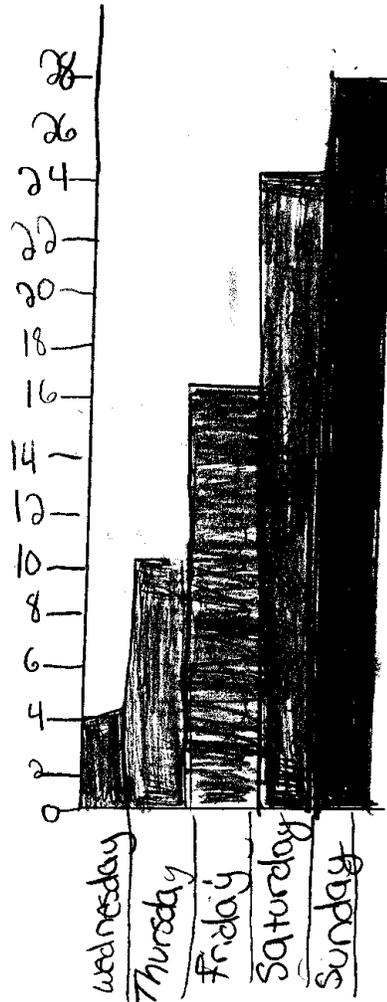
Sample Paper 8 Score Point 3

The response shows understanding of the task by creating an appropriate graph and completing three of the four graphing requirements.

- The response has a constructed line plot with all five data points correctly graphed. The miles graphed for each day are the cumulative distances hiked. Miles are graphed vertically from each day on the horizontal axis with an x representing each mile hiked. **(1 point)**
- The response has an appropriate title (*The Johnson Family Hiking Trip*). **(1 point)**
- The response has appropriate axis labels: “How many miles hiked per day” on the y-axis (with a note indicating “no y axis” which is correct) and “Days they hiked” on the x-axis. The distance unit label of “miles” must be included in the axis label or in the title of the graph for it to be considered correctly labeled. **(1 point)**
- The response does not include a key for the x’s graphed. If no key is given, the corresponding number of x’s must be at the same height across the horizontal axis for each day in order to make an accurate visual comparison. They are not at the same height in this representation. Days of the week, as categories, are evenly spaced on the horizontal line. **(0 points)**

The response earns **3 points**.

Sample Paper 9 – Score Point 2



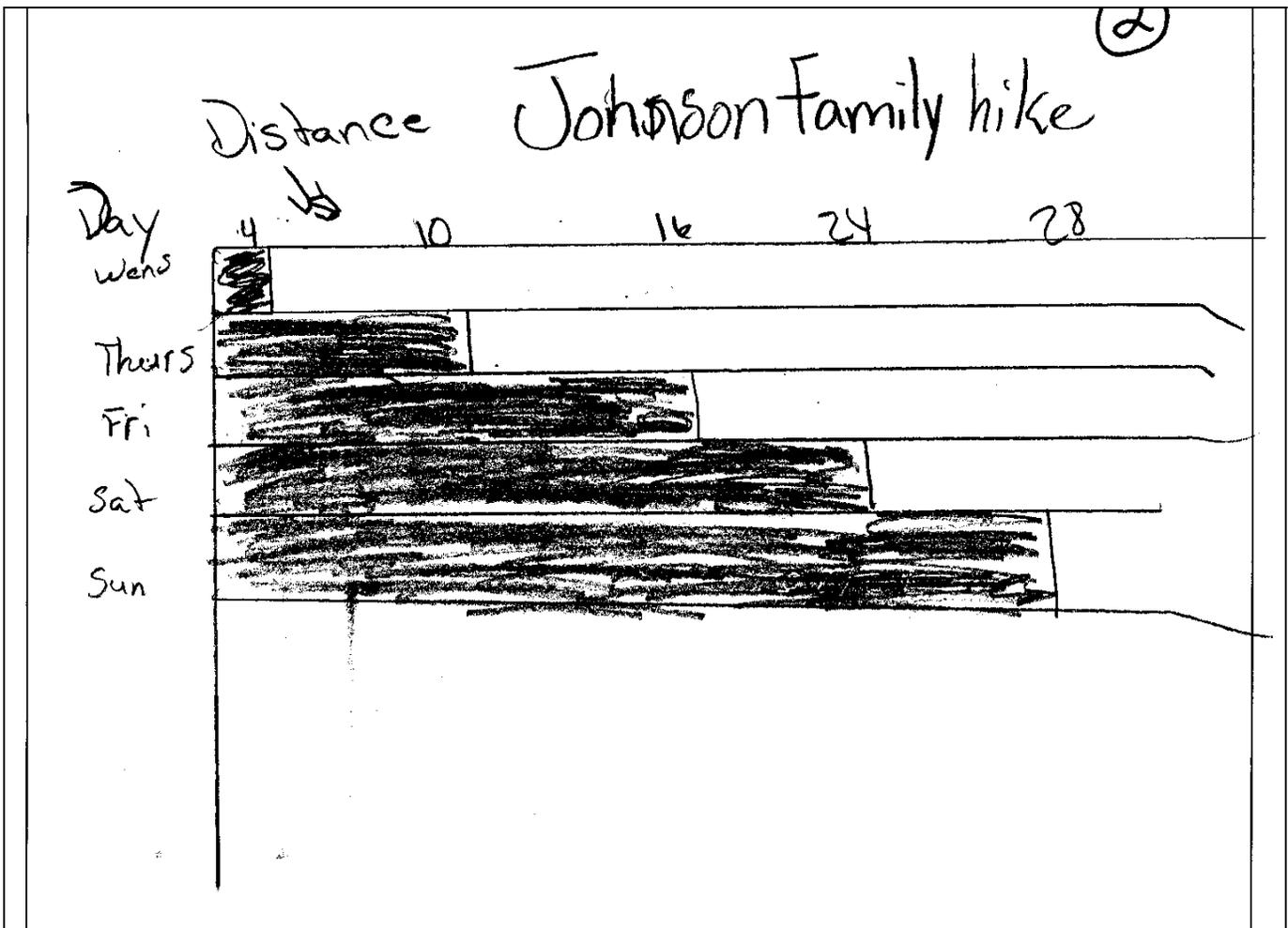
Sample Paper 9 Score Point 2

The response shows partial understanding of the task by creating an appropriate graph and completing two of the four graphing requirements.

- The response has a correctly constructed bar graph with all of the five data points correctly graphed. The miles graphed for each day are the cumulative distances hiked. The graph is drawn as a histogram with no space between the bars. It is an acceptable representation of the bar graph. **(1 point)**
- The response has no title. **(0 points)**
- The response has no axis labels. **(0 points)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 2 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **2 points**.

Sample Paper 10 – Score Point 2



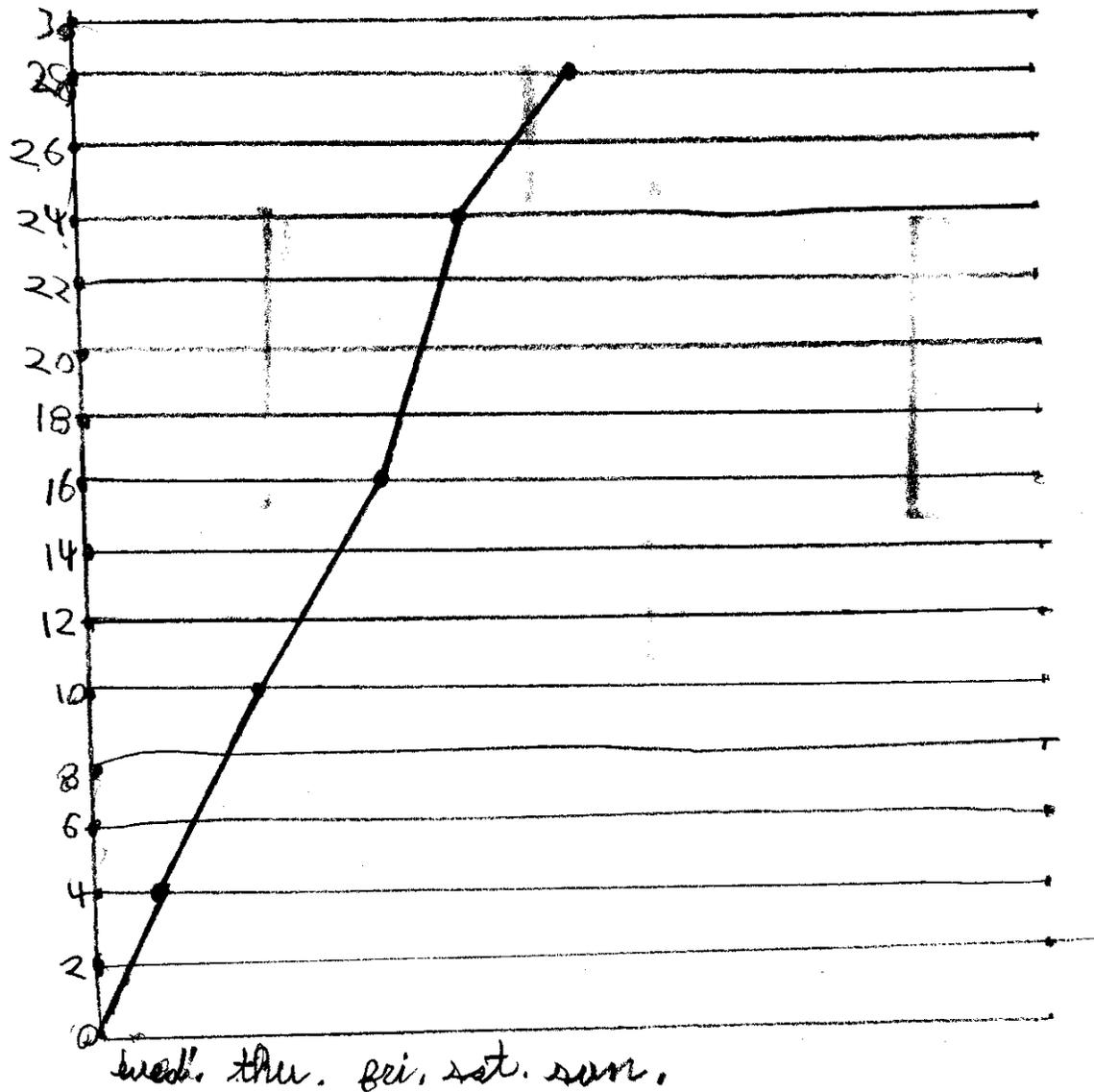
Sample Paper 10 Score Point 2

The response shows partial understanding of the task by creating an appropriate graph and completing two of the four graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed according to the student's scale. The miles graphed for each day are the cumulative distances hiked. The graph is drawn as a histogram with no space between the bars, an acceptable representation of the bar graph. The bars run horizontally because the axes have been switched, which is acceptable in a bar graph representation. **(1 point)**
- The response has an appropriate title (*Johnson Family hike*). **(1 point)**
- The response has appropriate axis labels: "Distance" on the y-axis and "Day" on the x-axis. The distance unit label of "miles" must be included in the axis label or in the title of the graph for it to be considered correctly labeled. "Miles" is omitted on this graph. **(0 points)**
- The response includes a scale that uses increments representing only the data given on the chart in the prompt for the x-axis. Days of the week, as categories, are on the y-axis and are evenly spaced on the line. It is acceptable to put the scale across the top of the graph instead of across the bottom. **(0 points)**

The response earns **2 points**.

Sample Paper 11 – Score Point 1



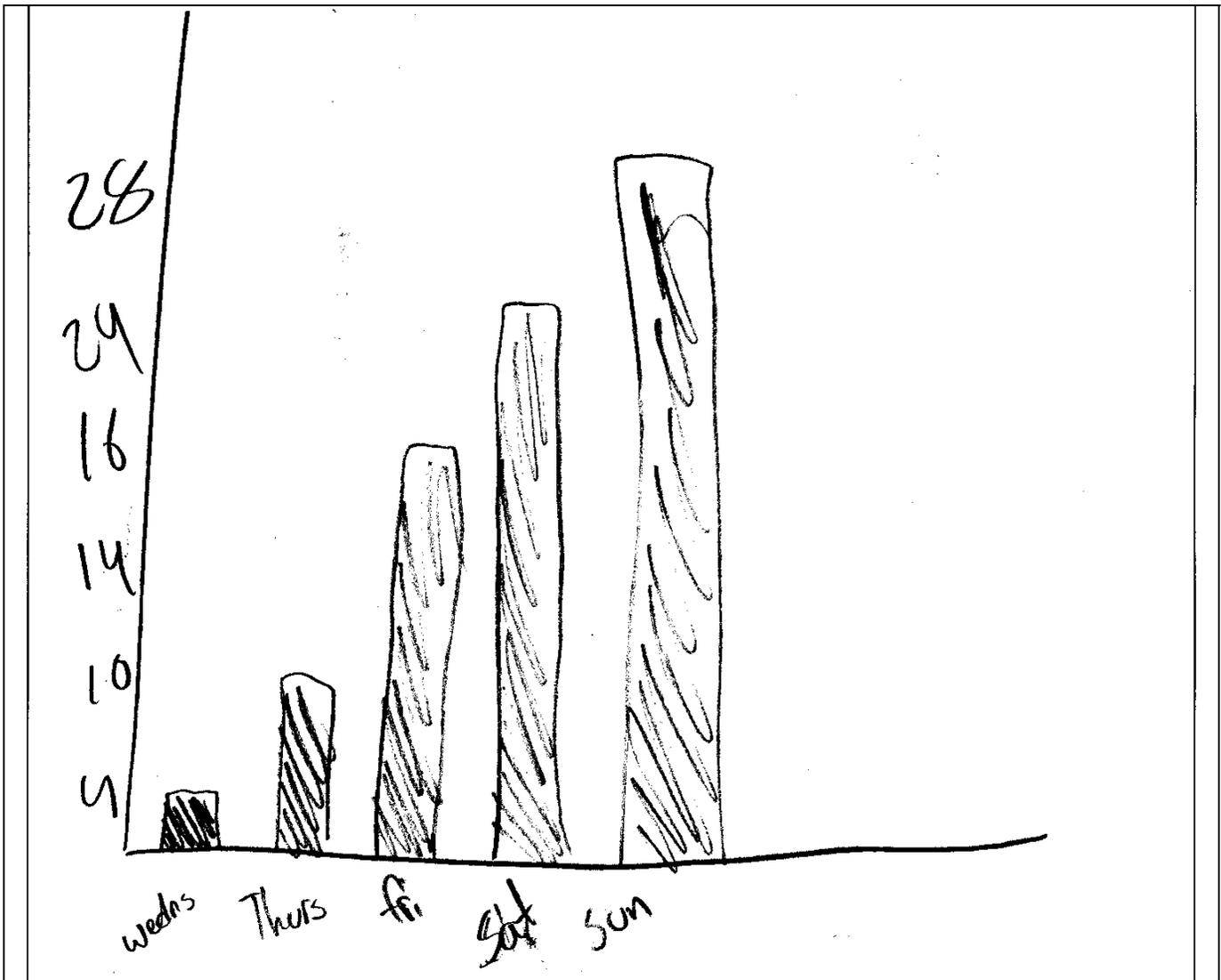
Sample Paper 11 Score Point 1

The response shows some understanding of the task by creating an appropriate graph and completing one of the four graphing requirements.

- The response has a line graph with all five data points correctly graphed and a straight line connecting each point. The miles graphed for each day are the cumulative distances hiked. Time is graphed correctly on the horizontal axis which is necessary on a line graph. A tag line is incorrectly drawn from the point of origin to the first data point. **(0 points)**
- The response has no title. **(0 points)**
- The response has no axis labels. **(0 points)**
- The response includes an appropriate scale that begins at 0 and goes up in evenly spaced increments of 2 on the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(1 point)**

The response earns **1 point**.

Sample Paper 12 – Score Point 1



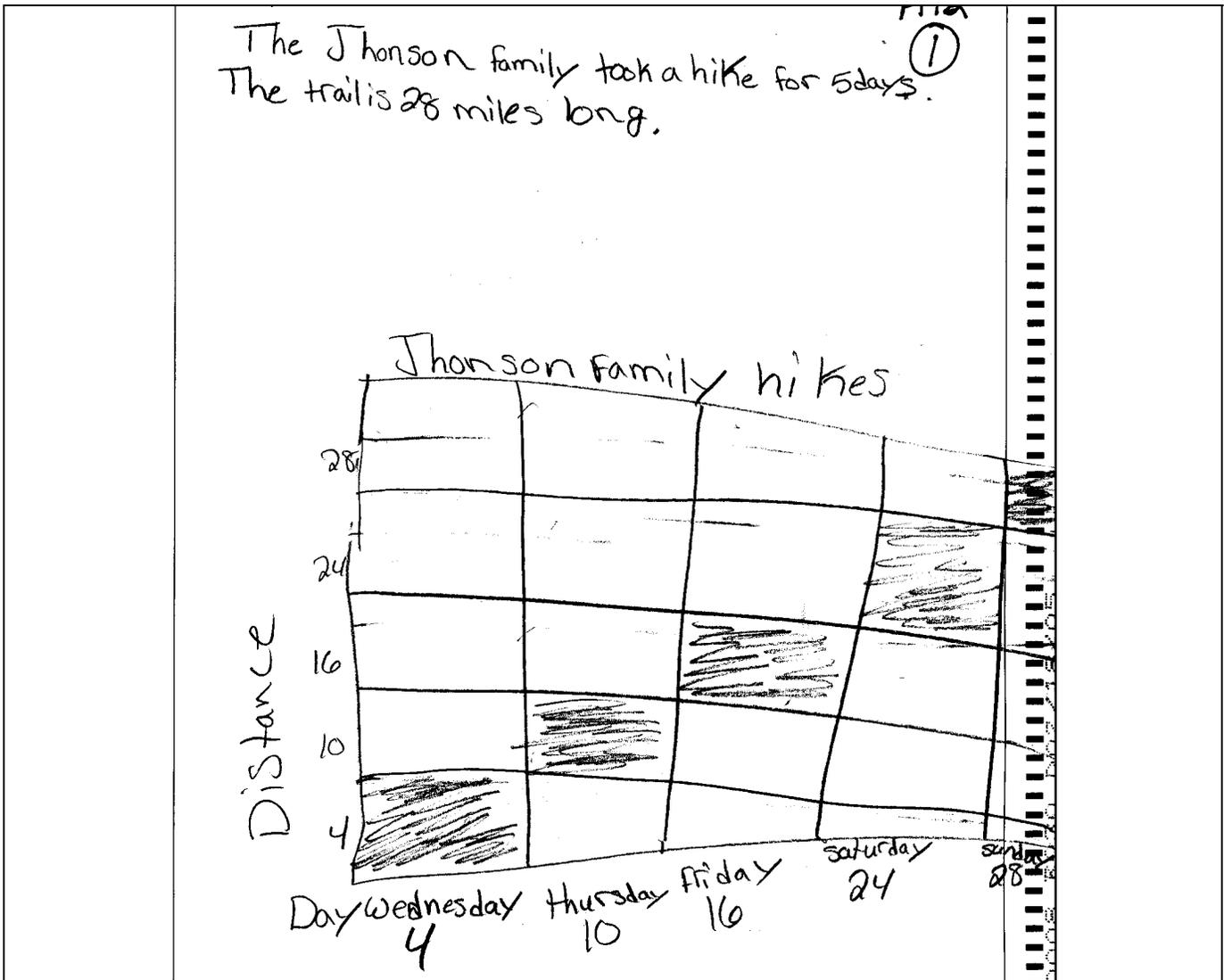
Sample Paper 12 Score Point 1

The response shows some understanding of the task by creating an appropriate graph and completing one of the four graphing requirements.

- The response has a correctly constructed bar graph with all five data points correctly graphed according to the student's scale. The miles graphed for each day are the cumulative distances hiked. **(1 point)**
- The response has no title. **(0 points)**
- The response has no axis labels. **(0 points)**
- The response includes a scale that uses unequal increments representing only the data given on the chart, plus the number 14, for the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. **(0 points)**

The response earns **1 point**.

Sample Paper 13 – Score Point 1



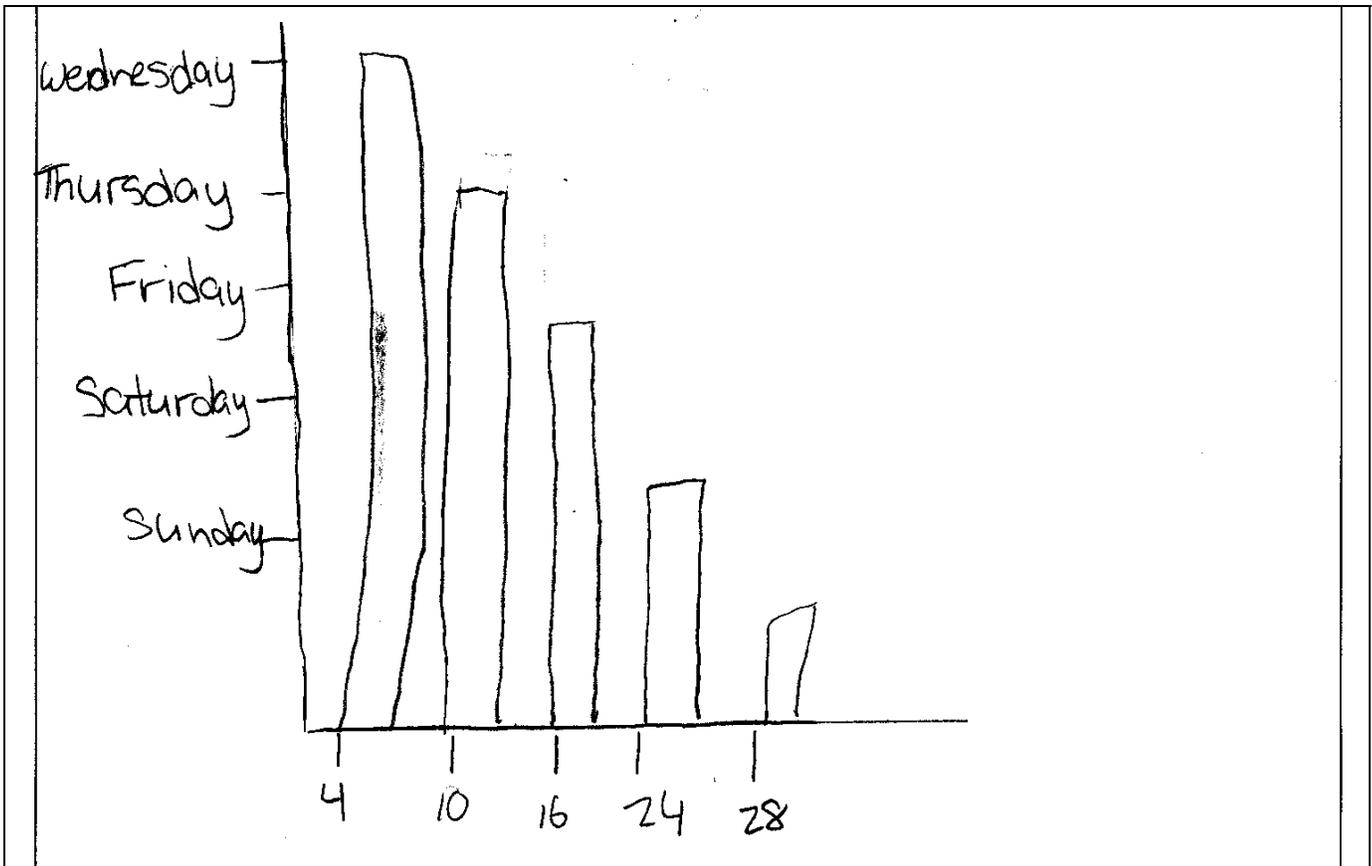
Sample Paper 13 Score Point 1

The response shows some understanding of the task by creating an appropriate graph and completing one of the four graphing requirements.

- The response has an incomplete bar graph with all five data points marked by a filled-in box where the data should be placed according to the student's scale. The miles graphed for each day are the cumulative distances hiked. The bars are incorrect because they do not go down to the horizontal axis line and are therefore incomplete. **(0 points)**
- The response has an acceptable title (*Jhonsoon Family hikes*). **(1 point)**
- The response has axis labels. The distance determination of "miles" is not included in the title or the labels, so the labels are incorrect. **(0 points)**
- The response includes a scale that uses increments representing only the data given on the chart in the prompt for the y-axis. Days of the week, as categories, are on the x-axis and are evenly spaced on the line. The numbers are incorrectly placed in the spaces, and the data points are represented by an entire box, not a specific line, on the graph. **(0 points)**

The response earns **1 point**.

Sample Paper 14 – Score Point 0



Sample Paper 14 Score Point 0

The response shows very little understanding of the task being tested.

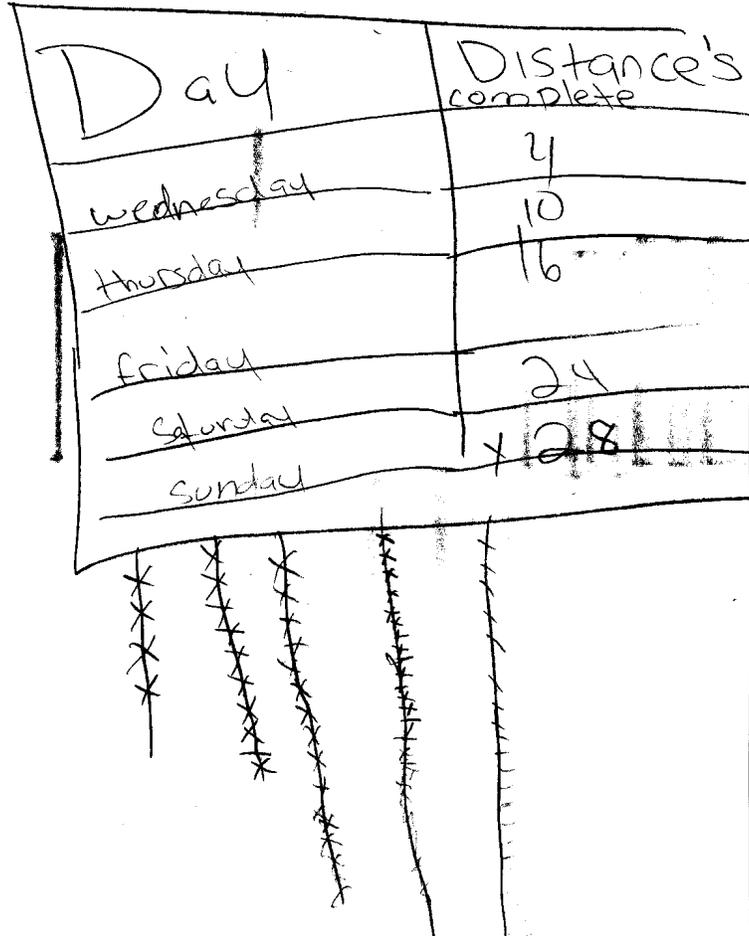
- The response has a bar graph with none of the five data points correctly graphed. The axes have been reversed, which is acceptable in a bar graph, but the bars run vertically, not horizontally as they should when the bars are reversed. **(0 points)**
- The response has no title. **(0 points)**
- The response has no axis labels. **(0 points)**
- The response includes a scale that uses increments representing only the data on the given chart for the horizontal axis. Days of the week, as categories, are on the vertical axis and are not evenly spaced on the line. **(0 points)**

The response earns **0 points**.

Sample Paper 15 – Score Point 0

4 points

Johnson family hike
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Sample Paper 15
Score Point 0

The response shows very little understanding of the task being tested.

- The response has an incomplete line plot. **(0 points)**
- The response has no title. The title on the response covers the reconstructed table, not the line plot attempt. **(0 points)**
- The response has no axis labels. **(0 points)**
- The response does not include a key for the x's graphed. If no key is given, the corresponding number of x's must be at the same height across the horizontal axis for each day, in order to make an accurate visual comparison. They are not at the same height in this representation. Days of the week, as categories, are not listed on the horizontal line. **(0 points)**

The response earns **0 points**.