

- 26** Erik arranged his 12 test scores on a number line, as shown below.



He wants to mark the median and mean scores on the line. Which of these statements must be true?

- The mean is to the left of the median.
- The mean is to the right of the median.
- The mean and the median are in the same place.
- The mean and the median have 4 test scores between them.

**This item appeared at only one grade level.\***

**Grade 9**

Standard 3.4a: Data Analysis, Probability, and Statistics

Subcontent Area: not assigned

\***Please note:** This item appeared on the grade 8 test but was not used in scoring.

## Mathematics

**27**

The pressure of salt water, in atmospheres, depends on the depth below the water's surface, in feet, as shown in the following equation.

$$\text{Pressure} = 1 + \frac{\text{depth}}{33}$$

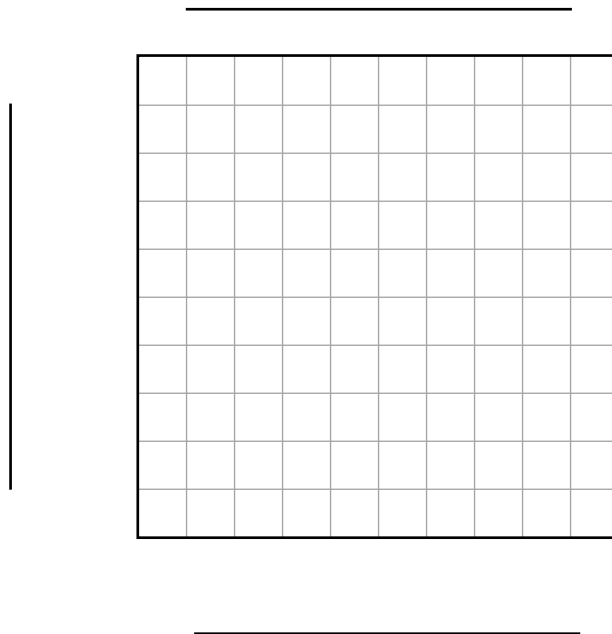
**Part A** Complete the table below.

Pressure (in atmospheres)	Depth (in feet)
1	
2	
3	
4	

**Part B** On the grid below, graph the data from the table.

Be sure to

- title the graph
- label each axis
- use appropriate scales



**Rubric**

**Exemplary Response**

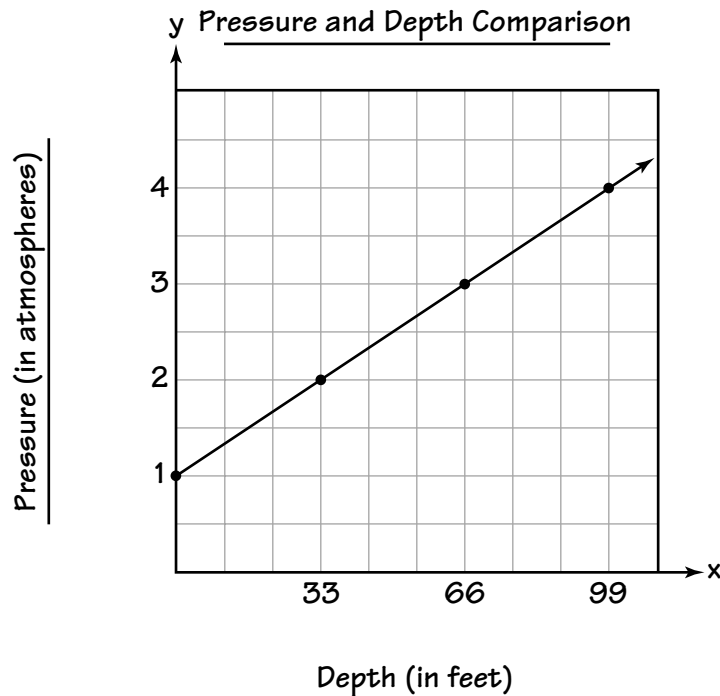
**Part A**

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Pressure (in atmospheres)	Depth (in feet)
1	0
2	33
3	66
4	99

**Part B**

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**Score Points:** Apply 2-point holistic rubric.

**This item appeared at two adjacent grade levels.**

**Grade 8**

Standard 2.2a: Patterns, Functions, and Algebra

Subcontent Area: linear pattern representation

**Grade 9**

Standard 2.2a: Patterns, Functions, and Algebra

Subcontent Area: multiple representations of linear/nonlinear functions

28

Amelia recorded the time it took for candles of different lengths to burn out. Her results are shown in the table below.

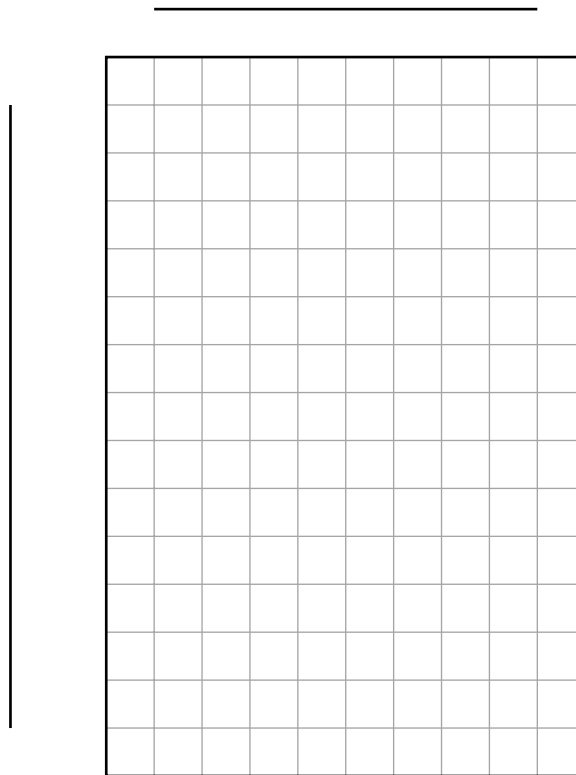
Candle Burning Times

Candle Length (in inches)	2.1	2.4	3.8	3.2	3.7	3.1	2.7
Burning Time (in minutes)	18	18	30	24	29	26	24

**Part A** On the grid below, create a scatterplot of her data and draw a line of best fit for the data.

Be sure to

- title the scatterplot
- label each axis
- use appropriate scales



**Part B** On the line below, write the equation for your line of best fit.

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**Part C** The next candle that Amelia tested burned for one hour. According to your line of best fit, how long was the candle? In the space below, explain or show how you found your answer and write your answer on the line.

\_\_\_\_\_ inches

**Part D** On the lines below, explain what the slope represents within the context of this problem.

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**29** For her science experiment, Ann combined the solutions in the amounts shown below.

2 ounces of pure water

2 ounces of a 10% blue dye solution

4 ounces of a 15% blue dye solution

4 ounces of a 50% blue dye solution

How many ounces are in the final mixture?

\_\_\_\_\_ ounces

What proportion of the final mixture is blue dye? In the space below, show your work and write your answer on the line.

Proportion \_\_\_\_\_

- 30** Aaron measured the heights of his plants. The heights, in inches, are shown below.

10, 11, 13, 15, 17, 18, 19, 20, 20, 23, 25, 27

What is the value of the lower quartile?

- 14.0 inches
- 18.5 inches
- 21.5 inches
- 20.0 inches

**This item appeared at two adjacent grade levels.**

**Grade 9**

Standard 3.4a: Data Analysis, Probability and Statistics

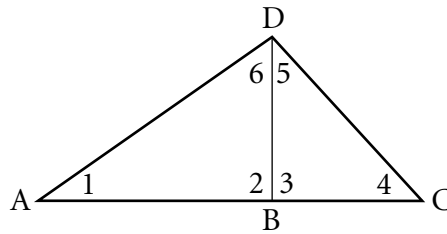
Subcontent Area: not assigned

**Grade 10**

Standard 3.4a: Data Analysis, Probability and Statistics

Subcontent Area: not assigned

- 31** Triangle ACD is divided into 2 smaller triangles by segment DB, as shown below.



Drawing **not** to scale

Angle 1 measures  $35^\circ$ . What is the **sum** of the measures of angles 4, 5, and 6?

- $125^\circ$
- $145^\circ$
- $180^\circ$
- $215^\circ$

**This item appeared at two adjacent grade levels.**

**Grade 9**

Standard 4.2a: Geometry and Spatial Sense

Subcontent Area: not assigned

**Grade 10**

Standard 4.2a: Geometry and Spatial Sense

Subcontent Area: not assigned



**32** Janet and Karen left work at the same time. After driving in the same direction on the highway for 25 minutes, Janet had traveled 7 miles farther than Karen. During this time, Janet's average speed was 60 miles per hour. What was Karen's average speed?

- 17 miles per hour
- 43 miles per hour
- 59 miles per hour
- 77 miles per hour

**This item appeared at two adjacent grade levels.**

**Grade 9**

Standard 5.1b: Measurement

Subcontent Area: not assigned

**Grade 10**

Standard 5.1b: Measurement

Subcontent Area: not assigned