Name:_____ Date:_____
Algebra 1 Band:_____

Unit 4: Linear Functions Performance Tasks

Instructions: Choose one performance task. Write all your work on a separate clean piece of paper and attach it to this page.

Big Idea: Functions
There are several forms for the equation of a line. Each form communicates different information. For instance, from the point-slope form, you can determine a point and the slope of a line.

Performance Task 1

During a hot-air balloon festival, data were gathered on the height y of a balloon after x minutes.

A. Is the rate of change constant? If so, what is the rate of change?
B. What are the units of the rate of change? What does the rate of change represent?
C. Write a linear equation in slope-intercept form to model this situation.
D. If the balloon continues to rise at the same rate, what will its height be after 8 minutes?
E. During what time interval is the height less than or equal to 500 meters?

Hot-Air Balloon Height

Time (min)	Height (m)
0	14
2.2	80
3.4	116
4	134
4.6	152

Performance Task 2

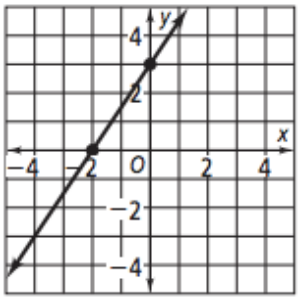
Computer repair companies use a fixed cost equation to determine how much to charge for an in-house repair. For example, a technician charges \$85 for a house call and \$45 per hour. The fixed cost equation is $y = 85 + 45x$.

A. How are the slope and the y-intercept of the graph related to the equation?
B. What is the rate of change in the equation? How is the rate of change related to the slope of the line represented by the equation? Explain.

Performance Task 3

You and your friend are having trouble using the different methods for finding the equation of a line. With the help of the graph at the right, provide a detailed step-by-step procedure that demonstrates how each method works.

A. Using slope and y-intercept
B. Using slope and a point
C. Using two points
D. Using x- and y-intercepts
E. Write the equation of the line right in the form $Ax + By = C$.
F. Think of a real-world situation that can be modeled using the equation you write in part (e).



Performance Task Assessment: Analytic Holistic Scoring

Developing Autonomy—The student

3	Persevered to complete the problem without help
2	Completed most of the problem without help
1	Needed key hints to complete the problem
0	Needed extensive guidance to work the problem

The Solution Process—The student's work showed

3	A complete and appropriate solution process
2	An appropriate solution process that is almost complete
1	An appropriate process that is partially complete
0	An inappropriate process or no evidence of a process

The Conclusion/Answer—The student's answer is an

3	Accurate conclusion, supported by valid evidence and reasons, appropriate to this problem and context
2	Inaccurate but logical conclusion, supported by evidence and reasoning but incorrect due to a minor factual error (in details of problem, in computation, recall a formula, etc.) or minor mistake in reasoning
1	Inaccurate but logical conclusion that overlooks, or gets wrong significant facts (about the problem, the rule, computation, etc.)
0	Inappropriate conclusion: not supported by facts and logic, or there is no conclusion

Teacher Comments: