

<b>Student Task</b>	Solve problems involving the cost of parties. Relate the formulas and graphs to this contextual problem.
<b>Core Idea 3 Algebra and Functions</b>	<b>Understand relations and functions, analyze mathematical situations, and use models to solve problems involving quantity and change.</b> <ul style="list-style-type: none"><li>• Explore relationships between symbolic expressions and graphs of lines.</li><li>• Recognize and generate equivalent forms of simple algebraic expressions and solve linear equations.</li></ul>
<b>Core Idea 2 Mathematical Reasoning</b>	<b>Solve problems that make significant demands in one or more of these aspects of the solutions process: problem formulation, problem implementation, and problem conclusion. Students communicate their knowledge of basic skill, conceptual understanding, and problem solving.</b> <ul style="list-style-type: none"><li>• Formulate conjectures, and argue why they must be or seem to be true.</li></ul>

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## Party

This problem gives you the chance to:

- choose and use number operations in context
  - find and use an algebraic formula
  - relate formulae and graphs
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Sarah is organizing a party at the Vine House Hotel.

**Vine House Hotel**  
**Your fab party place!**

**Charges**  
\$750 for up to 30 people  
**plus**  
\$20 per person for each extra person

1. Sarah thinks there will be 60 people at the party.  
Show that the cost will be \$1350.

2. What is the cost of a party for 100 people at the Vine House Hotel?      \$ \_\_\_\_\_

Show how you figured it out.

3.  $C$  dollars is the cost of a party for  $P$  people.  
Find a formula that gives  $C$  in terms of  $P$ .

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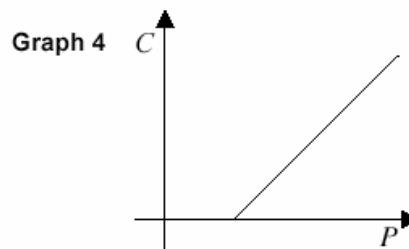
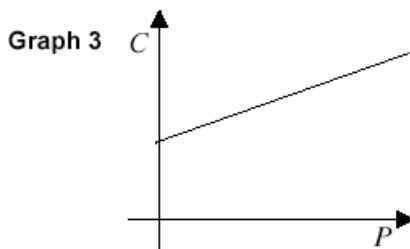
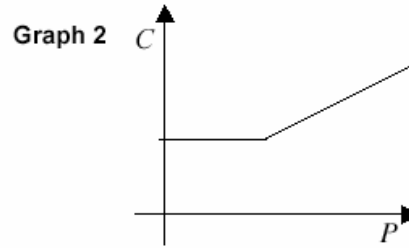
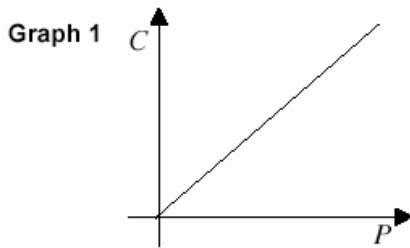
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4. Sarah's party cost \$1750 in all.  
How many people came to the party?  
Show your calculations.

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5. Which of these graphs shows the connection between the number of people at the party,  $P$ , and the cost,  $\$C$ ?

Graph \_\_\_\_\_



Explain how you figured it out.

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**10**

Party	Test 8 Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> <li>• choose and use number operations in context</li> <li>• find and use an algebraic formula</li> <li>• relate formulae and graphs</li> </ul> Based on these, credit for specific aspects of performance should be assigned as follows	points	section points
1. Shows necessary steps in the calculation: $\text{Cost} = \$750 + 30 \times \$20 = \$750 + \$600 = \$1350$	1	1
2. Gives correct answer: <b>\$2150</b>  Shows work such as: $750 + 70 \times 20$	1  1	2
3. Writes correct formula: $C = 750 + 20(P - 30)$ or equivalent when $P \geq 30$  <i>Partial credit:</i> $C = 750 + 20P$	2 1  (1)	3
4. Gives correct answer: <b>80</b>  Shows work such as: $1750 = 750 + 20(P - 30)$	1  1	2
5. Gives correct answer: <b>Graph 2</b>  Gives a correct explanation such as: The graph starts with a horizontal line because C is constant for the first 30 people, and then rises linearly.	1  1	2
<b>Total Points</b>		<b>10</b>