

Elevator Weight

This task assesses your ability to **reason logically**.

STUDENTS:

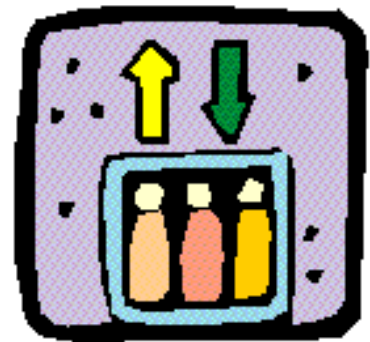
Your response will be scored using the **Mathematical Reasoning** Scoring Guide.

Show your best work by:

- using examples, models, facts, patterns, and/or relationships to validate and support a solution;
- evaluating effectiveness of procedures and results;
- giving complete support for results;
- being clear and organized from one step to the next.

Sara knew that when 2 adults of average weight and 5 children of average weight rode the elevator in her building, their total weight was 560 pounds. She had also carefully observed that the total weight of 6 adults was equal to that of 13 children.

If the maximum weight the elevator was capable of carrying was 2000 pounds, how many adults can ride at the same time? Show all parts of your solution and explain how you arrived at your answer.



Elevator Weight continued ...

Reflections

My response is good because I ...

- used examples, models, facts, patterns, and/or relationships to support my solution;
- evaluated the effectiveness of my procedures and results;
- gave complete support for my results;
- was clear and organized from one step to the next.

'99 Math Power Scoring Guide: Elevator Weight • Reasons Logically • Grade 10

	Criteria	4 Points <i>very fine work</i>	3 Points <i>fully acceptable work</i>	2 Points <i>partially acceptable</i>	1 Point <i>response attempted</i>	0 Points <i>none or insufficient</i>
Solutions	<ul style="list-style-type: none"> Is the correct number of adults identified as 15? 	<ul style="list-style-type: none"> correctly identifies the number of adults as 15 (An answer of 15.38, <u>must</u> be rounded down to 15); AND 	<ul style="list-style-type: none"> correctly identifies the number of adults as 15 (An answer of 15.38, <u>must</u> be rounded down to 15); AND 	<ul style="list-style-type: none"> correctly identifies the number of adults as 15; <u>or</u> may not correctly identify the number of adults as a result of minor computational or rounding error; AND 	<ul style="list-style-type: none"> identifies an answer that may or may not be correct; <u>or</u> does not correctly identify the number of adults as a result of conceptual errors; AND 	<ul style="list-style-type: none"> may or may not identify an answer; OR
Process	<ul style="list-style-type: none"> Is a strategy evident and method organized? (strategies may include an equation, ratio, chart, or guess-and-check) 	<ul style="list-style-type: none"> applies strategy to arrive at the answer; <u>and</u> clearly and completely shows all steps in method used; AND 	<ul style="list-style-type: none"> strategy applied is obvious, shows at least one intermediate step in the solution, but may lack organization; AND 	<ul style="list-style-type: none"> correctly guesses the average weight with no evidence of a strategy; <u>or</u> uses a strategy that may have computational errors; AND 	<ul style="list-style-type: none"> attempts to find the average weight of either the adults or children, but does not apply any coherent strategy; AND 	<ul style="list-style-type: none"> no attempt to find average weights or no intermediate steps shown; OR
Justifies	<ul style="list-style-type: none"> Is the conclusion justified and supported using logical reasoning? 	<ul style="list-style-type: none"> conclusion is justified, and is supported using <u>algebraic reasoning</u> (must use ratios, equations, or some form of algebraic thinking; <u>guess-and-check logic is not sufficient</u>). 	<ul style="list-style-type: none"> conclusion is justified, reasoning is sound, but may lack organization (may use ratios, equations, guess-and-check logic, etc.) 	<ul style="list-style-type: none"> explanation for conclusion may be incomplete, may need interpretation, and/or thinking may be flawed; <u>or</u> work/steps of strategy are clear but no explanation exists. 	<ul style="list-style-type: none"> explanation is irrelevant to the situation. 	<ul style="list-style-type: none"> no explanation is given.

Numerical part of answer:

- 15 adults (2000 lb capacity/130 lbs/adult = 15.38 adults);
- average weight of adults = 130 pounds; total adult weight is 1950 pounds.

Additional information that may be used:

- average weight of children = 60 pounds; 1 adult = $13/6 = 2.17$ children