

NAME: _____

A.A.6: Analyze and solve verbal problems whose solution requires solving a linear equation in one variable or linear inequality in one variable.

1. 069929a, P.I. A.A.6

The mean (average) weight of three dogs is 38 pounds. One of the dogs, Sparky, weighs 46 pounds. The other two dogs, Eddie and Sandy, have the same weight. Find Eddie's weight.

2. 089913a, P.I. A.A.6

If 6 and x have the same mean (average) as 2, 4, and 24, what is the value of x ?

[A] 14 [B] 10 [C] 5 [D] 36

3. 060703a, P.I. A.A.6

In his first three years coaching baseball at High Ridge High School, Coach Batty's team won 7 games the first year, 16 games the second year, and 4 games the third year. How many games does the team need to win in the fourth year so that the coach's average will be 10 wins per year?

[A] 13 [B] 10 [C] 3 [D] 9

4. 010230a, P.I. A.A.6

The students in Woodland High School's meteorology class measured the noon temperature every schoolday for a week. Their readings for the first 4 days were Monday, 56° ; Tuesday, 72° ; Wednesday, 67° ; and Thursday, 61° . If the mean (average) temperature for the 5 days was exactly 63° , what was the temperature on Friday?

5. 010432a, P.I. A.A.6

TOP Electronics is a small business with five employees. The mean (average) weekly salary for the five employees is \$360. If the weekly salaries of four of the employees are \$340, \$340, \$345, and \$425, what is the salary of the fifth employee?

6. 010936a, P.I. A.A.6

Juan received scores of 82, 76, 93, and 80 on his first four chemistry tests of the year. His goal is to have an 86 average in chemistry for his first five tests. What score must he earn on the next test to achieve an average of exactly 86?

7. 060204a, P.I. A.A.6

During each marking period, there are five tests. If Vanita needs a 65 average to pass this marking period and her first four grades are 60, 72, 55, and 80, what is the *lowest* score she can earn on the last test to have a passing average?

[A] 65 [B] 80 [C] 58 [D] 100

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8. 080110a, P.I. A.A.6
The exact average of a set of six test scores is 92. Five of these scores are 90, 98, 96, 94, and 85. What is the other test score?
[A] 89 [B] 86 [C] 91 [D] 92
9. spring9826a, P.I. A.A.6
On his first 5 biology tests, Bob received the following scores: 72, 86, 92, 63, and 77. What test score must Bob earn on his sixth test so that his average (mean score) for all six tests will be 80?
10. 060017a, P.I. A.A.6
For five algebra examinations, Maria has an average of 88. What must she score on the sixth test to bring her average up to exactly 90?
[A] 98 [B] 94 [C] 100 [D] 92
11. 010026a, P.I. A.A.6
Judy needs a mean (average) score of 86 on four tests to earn a midterm grade of B. If the mean of her scores for the first three tests was 83, what is the *lowest* score on a 100-point scale that she can receive on the fourth test to have a midterm grade of B?
12. 060438a, P.I. A.A.6
On the first six tests in her social studies course, Jerelyn's scores were 92, 78, 86, 92, 95, and 91. Determine the median and the mode of her scores. If Jerelyn took a seventh test and raised the mean of her scores exactly 1 point, what was her score on the seventh test?
13. 080227a, P.I. A.A.6
Tamika could not remember her scores from five mathematics tests. She did remember that the mean (average) was exactly 80, the median was 81, and the mode was 88. If all her scores were integers with 100 the highest score possible and 0 the lowest score possible, what was the *lowest* score she could have received on any one test?
14. 060738a, P.I. A.A.6
Angelo, Brandon, and Carl work in the same office. Angelo's age is 4 years more than twice Carl's age. Brandon is 5 years younger than Carl. The average of the three ages is 41. Find the age of *each* of the men.
15. 080836a, P.I. A.A.6
The mean of three numbers is 25. The second number is four less than twice the first. The third number is two more than four times the first. Find the *smallest* number.

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[3] 34 and an appropriate explanation is given, such as $38 = \frac{46 + 2x}{3}$.

[2] An appropriate method or equation is shown, but one computational mistake is made.

or [2] The student does not take into consideration two dogs of equal weight and gives an answer of 68.

[1] The student understands weighted average in that three dogs averaging 38 pounds must have a total weight of 114 pounds but does not subtract the known weight.

or [1] 34 and no explanation is given.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[1] incorrect procedure.

[2] A

[3] A

[3] 59 or 59°, and appropriate work is shown, such as $63 = \frac{256 + x}{5}$ or

$56 + 72 + 67 + 61 = 256$, $63 \times 5 = 315$, and $315 - 256 = 59$.

[2] Appropriate work is shown, but one computational error is made.

or [2] A value is chosen for Friday's temperature that rounds to 63, such as 57 or 61,

but whose mean is not exactly 63, and appropriate work is shown.

[1] A limited understanding of the concept of the mean is shown, such as the sum of the temperatures must be 315, but the given temperatures are not subtracted.

or [1] The correct mean of the four given temperatures is calculated.

or [1] 59 or 59°, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[2] \$350, and appropriate work is shown,

such as $\frac{1450 + x}{5} = 360$ or trial and error with

at least three trials and appropriate checks.

[1] Appropriate work is shown, but one computational error is made.

or [1] The total of the five salaries is shown to be $5 \times 360 = 1800$, but no further correct work is shown.

or [1] \$350, but no work is shown or fewer than three trials with appropriate checks are shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[5] incorrect procedure.

[3] 99, and appropriate work is shown, such as solving the equation $\frac{x + 331}{5} = 86$ or trial

and error with at least three trials and appropriate checks.

[2] Appropriate work is shown, but one computational error is made.

or [2] The trial-and-error method is used, but only two trials and appropriate checks are shown.

[1] Appropriate work is shown, but two or more computational errors are made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] The trial-and-error method is attempted and least six systematic trials and appropriate checks are shown, but no solution is found.

or [1] 99, but no work or only one trial with an appropriate check is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[6] incorrect procedure.

[7] C

[8] A

[3] Clearly identified answer of 90 arrived at by showing 480 points needed (6×80) minus 390 points already received using equations, table, or trial and error.

or [3] Shows a score of 87 - 92 will result in an average which rounds to 80 such as $390 +$

$87 = 477$ and $\frac{477}{6} = 79.5$ which rounds to 80.

[2] Has all correct work shown but does not identify answer or has an incorrect statement.

or [2] Shows appropriate method but calculates average incorrectly.

[1] Gives an answer of any number 87-92 with no explanation.

or [1] Begins a proper method using 390 points already received but does not arrive at

[9] a proper score.

[10] C

[3] 95 and an appropriate method is shown that obtains an answer, such as $344 - 249$ or a similar equation or method.

or [3] Four scores are tried that round off to an average of 86, such as 93 or 94. Round off to 86 must be shown.

[2] An appropriate method is shown, but one computational mistake is made.

[1] The student understands weighted average and shows that the average of 83 for 3 tests is a total of 249 points.

or [1] 95 and no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[11] incorrect procedure.

[4] Median = 91.5, mode = 92, and seventh test score = 96, and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

or [3] Seventh test score = 96, but only the median or the mode is found correctly, but appropriate work is shown.

or [3] 91.5, 92, and 96, and appropriate work is shown, but the median and mode are not labeled or are labeled incorrectly.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

or [2] Both the median and the mode are found and labeled correctly, and appropriate work is shown, but the seventh test score is not found or is found incorrectly.

or [2] Seventh test score = 96, and appropriate work is shown, but the median and the mode are not found or are found incorrectly.

[1] Either the median or the mode is found and labeled correctly, and appropriate work is shown, but no further correct work is shown.

or [1] Median = 91.5, mode = 92, and seventh test score = 96, but no work is shown.

[0] Median = 91.5 or mode = 92 or seventh test score = 96, but no work is shown.

or [0] 91.5, 92, and 96, but no work is shown and the answers are not labeled.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[12] obviously incorrect procedure.

[3] 63, and appropriate work is shown, such as $400 - (81 + 88 + 88)$ and determining the highest and lowest possible scores remaining that total 143.

[2] Appropriate work is shown, but one computational error is made.

[1] A total of 400 is shown, but one conceptual error is made, such as 257 is subtracted, and then 143 is split into 72 and 71, resulting in an answer of 71.

or [1] Appropriate work is shown, but more than one computational error is made.

or [1] No answer or an incorrect answer is found, but a list such as ____, ____, 81, 88, 88 is shown.

or [1] 63, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[13] incorrect procedure.

- [4] Angelo is 66, Brandon is 26, and Carl is 31, and appropriate work is shown, such as solving an equation or trial and error with at least three trials and appropriate checks.
- [3] Appropriate work is shown, but one computational error is made.
- or [3] 66, 26, and 31, and appropriate work is shown, but the solutions are not labeled or are labeled incorrectly.
- [2] Appropriate work is shown, but two or more computational errors are made.
- or [2] Appropriate work is shown, but one conceptual error is made.
- or [2] The trial-and-error method is used to find a correct solution, but only two trials and appropriate checks are shown.
- or [2] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.
- or [2] Carl is 31, and appropriate work is shown, but the ages of the other men are not found.
- or [2] An incorrect equation of equal difficulty is solved appropriately.
- [1] Appropriate work is shown, but one conceptual error and one computational error are made.
- or [1] A correct equation is written, but no further correct work is shown.
- or [1] Angelo is 66, Brandon is 26, and Carl is 31, but no work or only one trial with an appropriate check is shown.
- [0] Angelo is 66 *or* Brandon is 26 *or* Carl is 31, but no work is shown.
- or [0] 66, 26, and 31, but no work is shown, and the answers are not labeled or are labeled incorrectly.
- or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [14] obviously incorrect procedure.
- [3] 11, and appropriate work is shown, such as solving an equation or trial and error with at least three trials and appropriate checks.
- [2] Appropriate work is shown, but one computational error is made.
- or [2] Appropriate work is shown to find the three numbers, but a number other than the smallest is identified.
- or [2] The trial-and-error method is used to find the correct solution, but only two trials and appropriate checks are shown.
- or [2] One error is made in representing the three numbers algebraically, but an appropriate equation is written and solved correctly.
- [1] Appropriate work is shown, but two or more computational errors are made.
- or [1] Appropriate work is shown, but one conceptual error is made, such as not dividing $7x - 2$ by 3.
- or [1] Two errors are made in representing the three numbers algebraically, but an appropriate equation is written and solved correctly.
- or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.
- or [1] 11, but no work or only one trial with an appropriate check is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [15] incorrect procedure.