

*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. 080904ia, P.I. A.A.6

An online music club has a one-time registration fee of \$13.95 and charges \$0.49 to buy each song. If Emma has \$50.00 to join the club and buy songs, what is the maximum number of songs she can buy?

[A] 73      [B] 74      [C] 131      [D] 130

2. 010904ia, P.I. A.A.6

Tamara has a cell phone plan that charges \$0.07 per minute plus a monthly fee of \$19.00. She budgets \$29.50 per month for total cell phone expenses without taxes. What is the maximum number of minutes Tamara could use her phone each month in order to stay within her budget?

[A] 150      [B] 421      [C] 692      [D] 271

3. 060834ia, P.I. A.A.6

Peter begins his kindergarten year able to spell 10 words. He is going to learn to spell 2 new words every day. Write an inequality that can be used to determine how many days,  $d$ , it takes Peter to be able to spell *at least* 75 words. Use this inequality to determine the minimum number of whole days it will take for him to be able to spell *at least* 75 words.

4. fall0735ia, P.I. A.A.6

A prom ticket at Smith High School is \$120. Tom is going to save money for the ticket by walking his neighbor's dog for \$15 per week. If Tom already has saved \$22, what is the minimum number of weeks Tom must walk the dog to earn enough to pay for the prom ticket?

5. 010938a, P.I. A.A.6

Mr. Braun has \$75.00 to spend on pizzas and soda pop for a picnic. Pizzas cost \$9.00 each and the drinks cost \$0.75 each. Five times as many drinks as pizzas are needed. What is the maximum number of pizzas that Mr. Braun can buy?

6. 080732a, P.I. A.A.6

Thelma and Laura start a lawn-mowing business and buy a lawnmower for \$225. They plan to charge \$15 to mow one lawn. What is the *minimum* number of lawns they need to mow if they wish to earn a profit of *at least* \$750?

7. 010737a, P.I. A.A.6

The Eye Surgery Institute just purchased a new laser machine for \$500,000 to use during eye surgery. The Institute must pay the inventor \$550 each time the machine is used. If the Institute charges \$2,000 for each laser surgery, what is the *minimum* number of surgeries that must be performed in order for the Institute to make a profit?

8. 080224a, P.I. A.A.6

A doughnut shop charges \$0.70 for each doughnut and \$0.30 for a carryout box. Shirley has \$5.00 to spend. At most, how many doughnuts can she buy if she also wants them in one carryout box?

9. 010101a, P.I. A.A.6

There are 461 students and 20 teachers taking buses on a trip to a museum. Each bus can seat a maximum of 52. What is the *least* number of buses needed for the trip?

[A] 9      [B] 8      [C] 10      [D] 11

10. 089914a, P.I. A.A.6

In a hockey league, 87 players play on seven different teams. Each team has at least 12 players. What is the largest possible number of players on any one team?

[A] 15      [B] 21      [C] 14      [D] 13

11. 069928a, P.I. A.A.6

A swimmer plans to swim at least 100 laps during a 6-day period. During this period, the swimmer will increase the number of laps completed each day by one lap. What is the *least* number of laps the swimmer must complete on the first day?

*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] A

[2] A

[3]  $10 + 2d \geq 75$  or an equivalent inequality and 33, and appropriate work is shown.

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

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

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

or [1] An incorrect inequality of equal difficulty is solved appropriately.

or [1]  $10 + 2d \geq 75$ , but no further correct work is shown.

or [1] 33, 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

[3] incorrect procedure.

[3] 7, and appropriate work is shown, such as solving the inequality  $15x + 22 \geq 120$ , solving an equation, or trial and error with at least three trials and appropriate checks.

[2] Appropriate work is shown, but one computational or rounding 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.

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

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

or [1] An incorrect equation of equal difficulty is solved appropriately.

or [1] A correct inequality or equation is written, but no further correct work is shown.

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] 7, 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

[4] incorrect procedure.

[4] 5, and appropriate work is shown, such as an algebraic solution or trial and error with at least three trials and appropriate checks.

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

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

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

or [2] The trial-and-error method is used, 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] A correct inequality or equation is written, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or [1] 5, 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

[5] incorrect procedure.

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[2] 65, and appropriate work is shown, such as solving the inequality  $15x \geq 225 + 750$  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] Appropriate work is shown, but one conceptual error is made.

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] 65, but no work or fewer than three trials and 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

[6] incorrect procedure.

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[3] 345, and appropriate work is shown, such as solving the inequality  $1450x > 500,000$ , solving an equation, or trial and error with at least three trials and appropriate checks.

[2] Appropriate work is shown, but one computational or rounding 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.

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

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

or [1] A correct inequality or equation is written, but no further correct work is shown.

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] 345, 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

[7] incorrect procedure.

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[2] 6, and appropriate work is shown, such as  $0.70x + 0.30 \leq 5.00$  or trial and error with three trials and appropriate checks.

[1] The inequality is solved correctly, but the number of doughnuts is not found.

or [1] The trial-and-error method is used to find a correct solution, but fewer than three trials are shown.

or [1] 6, 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

[8] incorrect procedure.

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[9] C \_\_\_\_\_

[10] A \_\_\_\_\_

[3] 15 and an appropriate method or explanation is shown, such as trial and error or the inequality  $6x + 15 \geq 100$ .

[2] An appropriate method is shown, but it stops at 14.

[1] An appropriate method is shown, but no answer is found.

or [1] 15 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

[11] incorrect procedure.