

NAME: \_\_\_\_\_

*A.N.5: Solve algebraic problems arising from situations that involve fractions, decimals, percents (decrease/increase and discount), and proportionality/direct variation.*

1. 080114a, P.I. A.N.5

In his will, a man leaves one-half of his money to his wife, one-half of what is then left to his older child, and one-half of what is then left to his younger child. His two cousins divide the remainder equally, each receiving \$2,000. What was the total amount of money in the man's will?

- [A] \$24,000                      [B] \$40,000  
[C] \$32,000                      [D] \$16,000

2. 060116a, P.I. A.N.5

A boy got 50% of the questions on a test correct. If he had 10 questions correct out of the first 12, and  $\frac{1}{4}$  of the remaining questions correct, how many questions were on the test?

- [A] 28      [B] 26      [C] 16      [D] 24

3. 080228a, P.I. A.N.5

There are 28 students in a mathematics class.

If  $\frac{1}{4}$  of the students are called to the guidance

office,  $\frac{1}{3}$  of the remaining students are called

to the nurse, and, finally,  $\frac{1}{2}$  of those left go to

the library, how many students remain in the classroom?

4. 060328a, P.I. A.N.5

In a town election, candidates *A* and *B* were running for mayor. There were 30,500 people

eligible to vote, and  $\frac{3}{4}$  of them actually

voted. Candidate *B* received  $\frac{1}{3}$  of the votes

cast. How many people voted for candidate *B*? What percent of the votes cast, to the nearest tenth of a percent, did candidate *A* receive?

5. 080029a, P.I. A.N.5

After an ice storm, the following headlines were reported in the *Glacier County Times*:

Monday: Ice Storm Devastates County - 8 out of every 10 homes lose electrical power

Tuesday: Restoration Begins - Power

restored to  $\frac{1}{2}$  of affected homes

Wednesday: More Freezing Rain - Power lost by 20% of homes that had power on Tuesday

Based on these headlines, what fractional portion of homes in Glacier County had electrical power on Wednesday?

*A.N.5: Solve algebraic problems arising from situations that involve fractions, decimals, percents (decrease/increase and discount), and proportionality/direct variation.*

[1] C \_\_\_\_\_

[2] A \_\_\_\_\_

[3] 7, and appropriate work is shown or an appropriate explanation is given.

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

or [2] No answer or an incorrect answer is

found, but  $\frac{1}{4}$  of 28 and  $\frac{1}{3}$  of 21 are

calculated correctly to arrive at 14.

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

or [1] No answer or an incorrect answer is

found, but  $\frac{1}{4}$  of 28 is calculated correctly to

arrive at 21.

or [1] 7, 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.

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[3] 7,625 and 66.7%, and appropriate work is shown.

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

or [2] Only the number of votes for candidate B is found correctly, but appropriate work is shown.

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

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

or [1] The percent of votes cast for candidate A is found correctly, but no further correct work is shown.

or [1] 7,625 and 66.7%, but no work is shown.

[0] 7,625 or 66.7%, but no work is shown.

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

[4] obviously incorrect procedure.

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[3]  $\frac{48}{100}$  or any equivalent fraction or 0.48 or

48% and appropriate work is shown, such as

on Monday  $\frac{2}{10}$  have power,  $\frac{8}{10}$  lost power;

on Tuesday  $\frac{1}{2}(\frac{8}{10}) = \frac{4}{10}$  have been restored,

therefore  $\frac{2}{10} + \frac{4}{10} = \frac{6}{10}$  have power; on

Wednesday  $\frac{2}{10}$  lose power, therefore

$(\frac{8}{10})(\frac{6}{10}) = \frac{48}{100}$  have power.

[2] Appropriate work is shown, but one computational error is made, leading to a fractional answer.

or [2] One error of having or losing power is made, such as taking 20% of  $\frac{4}{10}$ .

[1] Appropriate work is shown, but multiple computational errors are made.

or [1] The correct answer is found, 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

[5] incorrect procedure.

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