



## Question 1

## RUBRIC

Score	Description
3	Response demonstrates thorough understanding of solving multi-step real life mathematical problems using tools strategically. <ul style="list-style-type: none"><li>• Student correctly finds the capacity. (1 point)</li><li>• Student clearly shows or explains how to find the answer. (2 points)</li></ul>

## SAMPLE RESPONSE

90% of 52 = 52% of New

$$0.90(52) = 0.52n$$

$$46.8 = 0.52n$$

$$90 = n$$

## Question 2

## RUBRIC

Score	Description
4	Response demonstrates thorough understanding adding and expanding linear expressions with rational coefficients. <ul style="list-style-type: none"><li>• 1 point for each correct answer. (2 points)</li><li>• 1 point for each correct explanation. (2 points)</li></ul>

## SAMPLE RESPONSE

$$3(2/3x + 8) = 108$$

$$2x + 24 = 108$$

$$2x = 108 - 24$$

$$2x = 84x = 84/2$$

$$x = 42 \text{ rooms per wing}$$

$$3 \times 42 = 126 \text{ rooms in all three wings}$$

$$126 - 104 = 22 \text{ rooms needed no work}$$

## Question 3

## RUBRIC

Score	Description
2	Response demonstrates thorough understanding (Subtract 1 point for each incorrect explanation)

### SAMPLE RESPONSE

The amounts are the same.

Senator A

28 million + 7% of 28 million

$$28,000,000 + .07 \times 28,000,000$$

$$28,000,000 + 1,960,000$$

$$29,960,000$$

Senator B

107 million% of 28 million

$$1.07 \times 28,000,000$$

$$29,960,000$$

### Question 4

#### RUBRIC

Score	Description
5	Response demonstrates thorough understanding of solving multi-step real life mathematical problems using tools strategically. <ul style="list-style-type: none"><li>• Student correctly identifies the savings in part a. (1 point)</li><li>• Student clearly shows or explains how to find the saving in part a. (2 points)</li><li>• Student correctly explains part b and provides a clear explanation. (2 point)</li></ul>

### SAMPLE RESPONSE

a. Savings:

$$30,000 \times 30\% \text{ plus } 3900 \times 20\% = \text{savings}$$

$$9000 + 780 = 9780 \text{ savings}$$

b.  $\frac{1}{3}$  unrented cost of heat and maintenance

$$\frac{1}{3} \text{ of } (30,000 + 3900)$$

$$\frac{1}{3}(33900)$$

$$11300$$

The savings by renting is less than  $\frac{1}{3}$  unrented cost because only inside cleaning is paid by renters.

## Question 5

## RUBRIC

Score	Description
6	<p>Response demonstrates complete knowledge to fluently solve equations in the form of <math>p(x + q) = r</math> and <math>px + q = r</math>.</p> <p>For each part, assign:</p> <ul style="list-style-type: none"> <li>• 1 point for the correct equation;</li> <li>• 1 point for the correct solution; and</li> <li>• 1 point for the correct sequence of operations.</li> </ul>

## SAMPLE RESPONSE

Ellie's

$$20(2x + 9.89) = 1380$$

$$40x + 197.80 = 1380 \text{ Distribute}$$

$$40x = 1182.20 \text{ Subtract}$$

$$x = \$29.56 \text{ Divide}$$

Franklin's

$$50x + 25(9.89) = 1750$$

$$50x + 247.25 = 1750 \text{ Multiply}$$

$$50x = 1502.75 \text{ Subtract}$$

$$x = \$30.06 \text{ Divide}$$

## Question 6

## RUBRIC

Score	Description
2	<p>Response demonstrates thorough understanding of writing and solving inequalities.</p> <ul style="list-style-type: none"> <li>• Student correctly writes and solves an inequality to find the number of light bulbs that can be on same circuit. (2 points)</li> </ul>

## SAMPLE RESPONSE

$$150x + 250 < 1380$$

$$150x < 1070$$

$$x < 7.53, \text{ so } 7 \text{ light bulbs (or fewer)}$$

# Question 7

## RUBRIC

Score	Description
3	<p>Response demonstrates complete knowledge to fluently solve equations in the form of <math>p(x + q) = r</math>.</p> <p>1 point for the correct equation;</p> <ul style="list-style-type: none"> <li>1 point for correct solution; and</li> <li>1 point for the correct sequence of operations.</li> </ul>

## SAMPLE RESPONSE

$$8\left(\frac{1}{3}x + 15\right) = 120,000$$

$$\frac{1}{3}x + 15 = 15,000$$

$$\frac{1}{3}x = 14985$$

$$x = 44,955 \text{ per country}$$

$$8(44,955) \text{ is area population}$$

$$359,640 \text{ is area population}$$