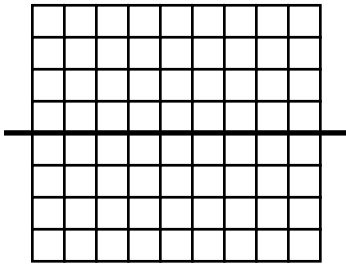


Empire State Mathematics March to May 2010 Supplement

Grade 3 Answer Key

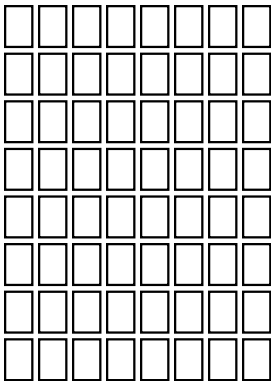
Lesson 1 *Multiplication Strategies* pp. 4–7

1. D [3.N.20]
2. B [3.N.20]
3. A [3.N.20]
4. C [3.N.20]
5. Short-response [3.N.20]
 - A. 8×9
 - B. *The split model may vary; the identified facts should reflect the split, e.g.,*



4×9 and 4×9

6. Extended-response [3.N.20]
 - A. *Drawings may vary but should resemble the following:*



- B. 4×8 or 8×4 ; *Explanations may vary but should say something like the following:*
The number 8 is double 4, so 8×8 is the same as $2 \times 4 \times 8$. I can find $4 \times 8 = 32$ and then double that to find the product: $32 + 32 = 64$.

Lesson 2 *Division Strategies* pp. 8–11

1. B [3.N.23]
2. C [3.N.23]
3. A [3.N.23]
4. D [3.N.23]

5. Short-response [3.N.23]
They are both right; *Explanations may vary but should say something like the following:* Multiplication and division are opposites. So the model can show both operations. It shows 5 rows of 8 squares for a product of 40 squares, or you can start with the total and divide 40 by 5 or 8 to get the quotient.
6. Extended-response [3.N.23]

A.

Total Amount Paid	Number of Tubes
28	7
16	4
32	8
36	9

divide by 4

- B. \$4; *Explanations may vary but should say something like the following:* The number of tubes is the quotient. If I divide the total cost by the number of tubes, I get the cost for a tube. All the tubes are the same price, \$4. That's the rule.

Lesson 3 *Estimates and Exact Answers* pp. 12–15

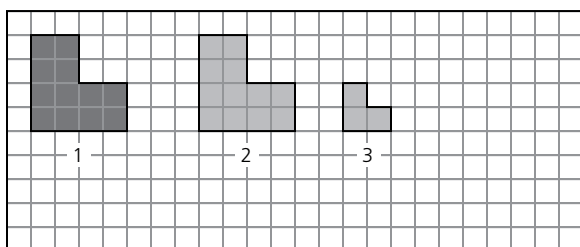
1. C [3.N.26]
2. B [3.N.26]
3. D [3.N.26]
4. A [3.N.26]
5. A [3.N.26]
6. Short-response [3.N.26]
estimate; *Explanations may vary but should say something like the following:* It would be impossible to count the number of people who ride the subway in one day, so an estimate is the best answer.
7. Extended-response [3.N.26]
 - A. 8 hours
 - B. \$8.55; *Explanations may vary but should say something like the following:* The turnpike tolls have to be exact because the machines only take exact amounts. The number of hours they drove is an estimate because it is hard to know exactly how long they were driving if they stopped to rest.

Lesson 4 Congruent and Similar Figures

pp. 16–19

1. D [3.G.2]
2. A [3.G.2]
3. D [3.G.2]
4. C [3.G.2]
5. Short-response [3.G.2]
 - A. similar and congruent
 - B. similar but not congruent
6. Extended-response [3.G.2]
 - A. See Part B.

B.



Explanations may vary but should say something like the following: Figure 1 is an L-shape that is 4 units high, 4 units across, and has a square 2×2 units wide cut out of the corner. Figure 3 is an L-shape that is 2 units high, 2 units across, and has a square 1×1 units wide cut out of the corner. So figure 3 is the same shape as figure 1, but not the same size.