

Empire State Mathematics March to May 2010 Supplement

Grade 6 Answer Key

Lesson 1 Writing Two-Step Equations

pp. 4–7

1. A [6.A.3]
2. D [6.A.3]
3. C [6.A.3]
4. B [6.A.3]
5. A [6.A.3]
6. Short-response [6.A.3]
 - A. $5p + 15$
 - B. $6p + 15 = 87$
7. Extended-response [6.A.3]
 - A. $2s + 80 = 320$
 - B. $4s + 80 = 560$; *Explanations may vary but should say something like the following:*
Since s represents the number of seats in level 2, doubling this to $2s$ represents the seats in level 3. I added this expression to my expression from part A: $2s + 2s + 80 = 4s + 80$. The total seats will be 560, so I made the expression equal 560 to make my equation.

Lesson 2 Solving Two-Step Equations

pp. 8–11

1. D [6.A.4]
2. B [6.A.4]
3. A [6.A.4]
4. B [6.A.4]
5. C [6.A.4]
6. Short-response [6.A.4]

540; $21 - 21 + \frac{y}{6} = 111 - 21$
 $\frac{y}{6} = 90$
 $\frac{y}{6} \times 6 = 90 \times 6$
 $y = 540$
7. Extended-response [6.A.4]
 - A. multiply each side by 4, then subtract 3 from each side
 - B. 141; $\frac{x+3}{4} \cdot 4 = 36 \cdot 4$
 $x + 3 = 144$
 $x + 3 - 3 = 144 - 3$
 $x = 141$

Lesson 3 Solving Proportions

pp. 12–15

1. D [6.A.5]
2. B [6.A.5]

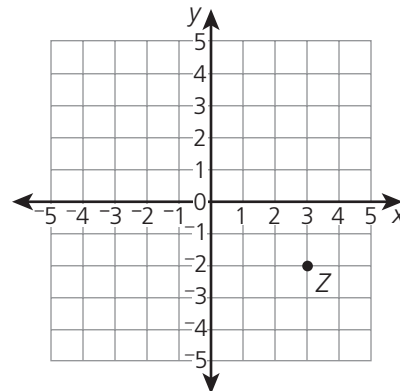
3. C [6.A.5]
4. B [6.A.5]
5. Short-response [6.A.5]

360; $30 \times 600 = 50 \times v$
 $18,000 = 50v$
 $18,000 \div 50 = 50v \div 50$
 $360 = v$
6. Extended-response [6.A.5]
 - A. *means:* 6 and a ; *extremes:* 30 and 15
 - B. \$75; $30 \times 15 = 6 \times a$
 $450 = 6a$
 $450 \div 6 = 6a \div 6$
 $75 = a$

Lesson 4 More Coordinate Geometry

pp. 16–19

1. D [6.G.10]
2. C [6.G.10]
3. B [6.G.11]
4. B [6.G.11]
5. Short-response [6.G.10]
 - A. Quadrant IV
 - B.



6. Extended-response [6.G.10, 11]
 - A. point C
 - B. 28 square units; *Explanations may vary but should say something like the following:*
First I found the area of the figure with endpoints $CDEF$. The length and width are both 6 units. So the area of $CDEF$ is $6 \times 6 = 36$ sq units. Then I found the area of $GHJK$ and subtracted it from the area of $CDEF$. The length GH is 4 units and the width GK is 2 units. The area of $GHJK$ is 8 units. The area of the figure is $36 - 8 = 28$ square units.

Lesson 5 Compound Events pp. 20–23

1. D [6.S.9]
2. C [6.S.11]
3. C [6.S.9]
4. A [6.S.11]
5. Short-response [6.S.9, 11]
 - A. BBB, BBM, BMB, BMM, MMM, MMB, MBM, MBB
 - B. $\frac{1}{8}$
6. Extended-response [6.S.9, 11]
 - A. 12; 1H, 2H, 3H, 4H, 5H, 6H, 1T, 2T, 3T, 4T, 5T, 6T
 - B. $\frac{1}{6}$

Lesson 6 Dependent Events pp. 24–27

1. B [6.S.10]
2. D [6.S.10]
3. B [6.S.10]
4. A [6.S.10]
5. Short-response [6.S.10]

$\frac{3}{15}$ or $\frac{1}{5}$; *Explanations may vary but should say something like the following:* Since the first toy car was already picked, there are only 15 toy cars left. Of the toy cars that are left, 3 are blue. So the probability of picking a blue toy car is $\frac{3}{15}$. This can be reduced to $\frac{1}{5}$.
6. Extended-response [6.S.10]
 - A. $\frac{6}{35}$; $P(\text{first mint peppermint}) = \frac{9}{21} = \frac{3}{7}$
 $P(\text{second mint peppermint}) = \frac{8}{20} = \frac{2}{5}$
 $P(\text{both mints peppermint}) = \frac{3}{7} \times \frac{2}{5} = \frac{6}{35}$
 - B. $\frac{12}{19}$