

7th Grade Advanced Topic II Solving Linear Equations, MA.7.A.3.3, MA.7.A.3.4, *MA.7.A.5.2, *MA.7.EE.2.3, *MA.7.EE.3.7**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- 1** Erin opened a savings account with \$50. She deposited \$35.50 into the account every month until she had a total of \$653.50. Which equation could be used to find m , the number of months she made deposits into the account?
- A. $653.5 = 50 + 35.5m$
B. $653.5 + 50 = 35.5m$
C. $653.5 = 50 - 35.5m$
D. $653.5 \div 50 = 35.5m$
- 2** Which statement BEST describes how the value of x can be found in the equation $\frac{x}{3} + 4 = \frac{1}{2}$ in two steps?
- F. Subtract 4 from both sides of the equation, and then multiply both sides of the equation by 3.
G. Subtract 4 from both sides of the equation, and then multiply both sides of the equation by $\frac{1}{3}$.
H. Add 4 to both sides of the equation, and then multiply both sides of the equation by 3.
I. Add 4 to both sides of the equation, and then multiply both sides of the equation by $\frac{1}{3}$.
- 3** Mr. James will solve the equation $150x = 2,200$ for x in one step. Which proportion is the MOST appropriate step for Mr. James to use?
- A. $\frac{150x}{150} = \frac{2,200}{150}$
B. $\frac{150x}{x} = \frac{2,200}{x}$
C. $150x + 150 = 2,200 + 150$
D. $150x - 150 = 2,200 - 150$

- 4** Russell is building birdhouses for a craft show. He wants to have 120 birdhouses to sell. He has finished 45 birdhouses. If Russell can build 15 birdhouses per week, how many more weeks does he need to finish all of the birdhouses?
- F. 3
G. 5
H. 8
I. 11
- 5** What value of x will make the equation $3x - 12 = 9$ true?
- A. -1
B. 3
C. 7
D. 21
- 6** An artist sells earrings from a booth at a fair. Rent for the booth is \$250. The artist makes \$5.00 from each pair of earrings sold. How many pairs of earrings must the artist sell to earn a profit of \$500?
- F. 150
G. 100
H. 50
I. 25
- 7** Which steps would solve $\frac{5}{6}x + 8 = 68$?
- A. Subtract 8 from both sides of the equation, then multiply both sides by $\frac{5}{6}$
- B. Subtract 8 from both sides of the equation, then multiply both sides by $\frac{6}{5}$
- C. Add 8 to both sides of the equation, then multiply both sides by $\frac{5}{6}$
- D. Add 8 to both sides of the equation, then multiply both sides by $\frac{6}{5}$

- 8** Jason belongs to a gym that charges a flat fee of \$10 per month plus a daily rate of d dollars for each day he uses the gym. Jason used the gym 20 days last month. The amount he paid (a), in dollars, can be determined using the equation below.

$$a = 20d + 10$$

If Jason paid \$70 last month, what is the daily rate he pays, in dollars?

- F. 3
- G. 4
- H. 30
- I. 1410

- 9** Which would be the BEST first step to use to solve the equation below?

$$\frac{7}{12} = \frac{5}{6}x$$

- A. add $-\frac{6}{5}$ to both sides of the equation
- B. add $\frac{6}{5}$ to both sides of the equation
- C. multiply by $-\frac{6}{5}$ on both sides of the equation
- D. multiply by $\frac{6}{5}$ on both sides of the equation

- 10** Which is equivalent to $-4(4x - 3) = 52$?

- F. $-16x - 3 = 52$
- G. $-16x + 12 = 52$
- H. $-16x - 7 = 52$
- I. $-16x - 12 = 52$

- 11** Keisha rented a bicycle from a bicycle rental company for a total of \$22. The company charges \$10 for the first hour and \$2.00 for each additional hour. The equation below can be used to find h , the number of hours the canoe was rented.

$$10 + (h - 1)(2) = 22$$

Which of the following equations is equivalent to the equation above?

- A. $10 + (2h - 2) = 22$
- B. $10(h + 1)(2) = 22$
- C. $10(2) + h = 22$
- D. $10 + h(2) = 22$
- 12** Which equation has a solution equivalent to the solution to $4 + 3x + 1 = 23$?
- F. $3x + 5 = 23$
- G. $4 + 4x = 23$
- H. $7x + 1 = 23$
- I. $12x + 4 = 23$
- 13** Which equation is equivalent to $3(5x - 4) = 2(7x)$?
- A. $5x - 4 = 14x$
- B. $5x - 12 = 14x$
- C. $15x - 4 = 14x$
- D. $15x - 12 = 14x$
- 14** Which expression is equivalent to $5 \cdot n \cdot 4 = 20$
- F. $(5 + 4)n = 20$
- G. $(5 \cdot 4)n = 20$
- H. $(5 \div 4)n = 20$
- I. $(5 - 4)n = 20$
- 15** Which equation is equivalent to $-(4 - x) = 21$?
- A. $-4 + x = 21$
- B. $-4 + x = -21$
- C. $-4 - x = 21$
- D. $-4 - x = -21$

Short Answer

- 16** Katie and Margarita have \$20.00 each to spend at Students' Choice book store, where all students receive a 20% discount. They both want to purchase a copy of the same book which normally sells for \$22.50 plus 10% sales tax.
- To check if she has enough to purchase the book, Katie takes 20% of \$22.50 and subtracts that amount from the normal price. She takes 10% of the discounted selling price and adds it back to find the purchase amount.
 - Margarita takes 80% of the normal purchase price and then computes 110% of the reduced price.
- Is Katie correct? Is Margarita correct? Do they have enough money to purchase the book?
- 17** When working on a report for class, Catrina read that a woman over the age of 40 can lose approximately 0.06 centimeters of height per year.
- a. Catrina's aunt Nancy is 40 years old and is 5 feet 7 inches tall. Assuming her height decreases at this rate after the age of 40, about how tall will she be at age 65? (Remember that 1 inch = 2.54 centimeters.)
 - b. Catrina's 90-year-old grandmother is 5 feet 1 inch tall. Assuming her grandmother's height has also decreased at this rate, about how tall was she at age 40? Explain your reasoning.
- 18** For a science project, Sammy observed a chipmunk and a squirrel stashing acorns in holes. The chipmunk hid 3 acorns in each of the holes it dug. The squirrel hid 4 acorns in each of the holes it dug. They each hid the same number of acorns, although the squirrel needed 4 fewer holes. How many acorns did the chipmunk hide?