

Course 1 Unit 3 Practice

LESSON 11-1

1. Zhian follows a routine every morning before he goes to school. Order the steps in the table as you think Zhian will complete them.

Activity	Order
Comb hair	
Dress	
Eat breakfast	
Get out of bed	
Pack book bag	
Put on shoes	
Put on socks	
Take a shower	
Walk to school	

2. Simplify each expression.

- a. $16 - 4 \div 2 \cdot 3$
 b. $18 \div 3 + 3 \cdot 4$
 c. $3^2 - 2^5 \div 2^2$
 d. $(8 \cdot 6 + 1) \div 7$
 e. $(5^3 + 5^2) \div 10 + (2^3 - 3)$

3. **Reason quantitatively.** Insert parentheses when needed to make each number sense true.

- a. $6 + 8 \cdot 3 = 30$
 b. $10 + 14 \div 2 = 12$
 c. $16 \div 4 + 24 \div 2 = 14$

4. Chaya plans to buy two jeans for \$30 each and 3 tops for \$9 each. Which expression represents this situation?

- A. $(2 + 30) \cdot (3 + 9)$
 B. $(2 \cdot 30) + (3 \cdot 9)$
 C. $(30 \div 2) + (9 \div 3)$
 D. $(30^2) + (9^3)$

5. Simplify the expression: $9 \cdot 4 + 10 \div 2$

- A. 46
 B. 41
 C. 23
 D. 18

LESSON 11-2

6. Evaluate each expression for the given value of the variable.

- a. $12x - 9$ when $x = 4$
 b. $\frac{d}{15} + 13$ when $d = 60$
 c. $5m - 11$ when $m = 7$
 d. $8k^2 + 26$ when $k = 3$
 e. $(21 - m)^2 \div 5$ when $m = 6$

7. **Construct viable arguments.** Which pairs of expressions are equivalent? Justify your answer.

- A. $2n$ and n^2 B. $(2x)^2$ and $4x^2$

8. Identify the terms in each expression.

- a. $10y - 16$ b. $ab^2 - 3ab + 9$

9. Identify the coefficients of the variables in each expression.

- a. $48r^3 - 3r$ b. $\frac{72f}{f-2}$

10. Which expression represents the product of x and 6 divided by 4?

- A. $(x + 6) \div 4$
 B. $x + \frac{6}{4}$
 C. $\frac{x + 6}{4}$
 D. $\frac{6x}{4}$

LESSON 11-3

- 11.** Tell which operation(s) is being used and write an algebraic expression for each verbal expression.
- 8 less than a number
 - the quotient of a number and 12
 - the product of 7 and a number
- 12.** Write an algebraic expression for each verbal expression.
- the product of a number and 12
 - half a number decreased by 9
 - a number cubed increased by 3
 - the square of the sum of a number and 5
 - six less than seven times a number
- 13.** Briana bought 5 bananas for \$1. Sal bought 5 bananas at \$.49 a pound. If a banana weighs about 5 ounces, who got the better buy? (16 oz = 1 lb)
- How much did Briana pay per ounce for the bananas?
 - How much did Sal pay per ounce for the bananas?
 - Who got the better buy?
- 14. Persevere in solving problems.** It costs \$15 an hour to rent a bike at the County Park. There is a 30% discount if you reserve a bike on line.
- Write an algebraic expression for the cost of renting a bike if you do not reserve a bike on line.
 - Write an algebraic expression for the cost of renting a bike if you reserve a bike on line.
 - How much will Raphael save if he reserves a bike on line and rents it for 3 hours?

- 15.** Which of the following could be the verbal expression for the algebraic expression $n^2 + 2n$?
- twice a number squared
 - the square of a number and twice the number
 - the product of a number squared and twice the number
 - the sum of a number squared and twice the number

LESSON 11-4

- 16.** Identify each property.
- $6x + 0 = 0$
 - $15(x + 9) = 15(9 + x)$
 - $8(a + 7b - 5) = 8a + 56b - 72$
 - $j + (2k + 5) = (j + 2k) + 5$
 - $3m^2 \cdot 1$
- 17.** Use the Distributive Property to determine whether the following expressions are equivalent.
- $3(x - 5)$ and $3x - 5$
 - $12a + 12 \cdot 3$ and $12(a + 3)$
 - $7(6a + 5b)$ and $42a + 35b$
- 18.** Use the indicated property to write an expression equivalent to the given expression.
- 25; Additive Identity Property
 - $9x + 9$; Distributive Property
 - $3 \cdot (y \cdot 6)$; Commutative Property of Multiplication
 - $3 \cdot (y \cdot 6)$; Associative Property of Multiplication
- 19. Reason abstractly.** Which property is illustrated by the following equation?
- $$(5x + 3y) + 7 = (3y + 5x) + 7$$
- Associative Property of Addition
 - Commutative Property of Addition
 - Distributive Property
 - Identity Property of Addition

20. Which expression is equivalent to $5(2x + 3y + 4z)$?

- A. $10x + 3y + 4z$
- B. $10x + 15y + 20z$
- C. $7x + 8y + 9z$
- D. $7x + 3y + 4z$

LESSON 12-1

21. Identify each as an expression or an equation.

- a. $2x + 3 = 19$
- b. $10(m - 5)$
- c. $7b = 63$

22. **Reason abstractly.** Write an equation for each situation. Define any variable you use.

- a. What number do you subtract from 51 to get 28?
- b. By what number do you multiply 25 to get 750?
- c. Stephan caught 3 times as many fish on Sunday as he did on Saturday. If Stephan caught 18 fish on Sunday, how many fish did he catch on Saturday?
- d. There are 300 pieces to a child's jig saw puzzle. Julio put together 179 pieces. How many more pieces does he need to put together to complete the puzzle?
- e. Chouko wants to save \$80 to buy a bike. She earns \$16 a week babysitting. How many weeks will it take her to save for the bike?

23. **Make sense of problems.** Heather bought 5 apples for \$3 and a melon. The total cost for the fruit was \$4.95. How much did the melon cost? Identify the equation you could use to represent the situation where m represents the cost of the melon.

- A. $3m = 4.95$
- B. $3 + m = 4.95$
- C. $5 + m = 4.95$
- D. $15 + m = 4.95$

24. Write an equation for the following situation.

Define any variable you use. Lauren is 3 years older than her brother Dyami. The sum of their ages is 23 years. How old is Dyami?

25. Corrine and Elizabeth went out for dinner. The check for their dinner was \$32.75. Corrine knows her dinner cost \$18.95. How much did Elizabeth's dinner cost? If you let c represent the cost of Corrine's dinner, which equation represents the situation?

- A. $c + 32.75 = 18.95$
- B. $18.95c = 32.75$
- C. $c + 18.95 = 32.75$
- D. $\frac{32.75}{c} = 18.95$

LESSON 12-2

26. Use this set of possible solutions to determine the solution to each equation.

{6, 9, 12, 13, 20, 22, 35}

- a. $2y + 8 = 34$
- b. $8y = 72$
- c. $c + 12 = 47$
- d. $\frac{w}{3} + 4 = 8$

27. What is the solution to the equation $74 - y = 60$?

- A. 134
- B. 34
- C. 26
- D. 14

- 28.** Shannon is constructing a patio in her backyard. To have room for all of her patio furniture, the area of the patio must be 360 square feet. She remembers the formula $A = lw$ gives the area of a rectangle, where A represents the area, l represents the length, and w represents the width.

a. Model with mathematics. Write an equation to represent this situation.

b. Shannon only has room for her patio to be 18 feet wide. Substitute this value to write a new equation representing this situation.

c. Construct viable arguments. Use mental math to find the length of Shannon's patio. Explain your reasoning.

- 29. Model with mathematics.** Hector is measuring the dimensions of his rectangular lot. He knows that the perimeter can be calculated by adding the lengths of the four sides. He knows that the perimeter is 450 feet and that the length is 75 feet. He wants to calculate the length of the other two sides.

a. Draw a diagram of this situation.

b. Write an equation that Hector can use to find the missing length where x represents the width of one side.

c. Use $\{100, 150, 175\}$ to find the solution to the equation.

- 30.** What is the solution to the equation $5w = 90$?

A. 450
B. 85
C. 22
D. 18

LESSON 13-1

- 31. Model with mathematics.** Janelle wants to buy a new surfboard. She has saved \$120 from babysitting. The surfboard she wants costs \$570. How much more does she need to save to be able to buy the surfboard?

a. Define a variable.
b. Write a verbal model for this situation.
c. Write an equation.
d. Use mental math to determine the solution.

- 32.** Alejandro has 24 dozen bagels to sell. He has sold 9 dozen. How many more dozen bagels does he have to sell? Which equation can be used to model the situation?

A. $24 + 9 = b$
B. $24 + b = 9$
C. $b + 9 = 24$
D. $9b = 24$

- 33. Make sense of problems.** Bena is planting 150 trees on her property. She has planted 48 trees. How many more trees does Bena have to plant? Write, solve, and check an equation for this situation. Define the variable.

- 34.** Tu has 25 flats of flowers. He needs 36 flats of flowers for a project. How many more flats of flowers does he need? Which equation can be used to model the situation?

A. $25 + 36 = f$
B. $25 + f = 36$
C. $f + 36 = 25$
D. $25f = 36$

35. Ayita wants to buy a computer that costs \$1200. She has saved \$550 for a down payment. How much will Ayita owe on the computer? Write, solve, and check an equation for this situation. Define the variable.

LESSON 13-2

36. Solve the equation algebraically.
- a. $x + 32 = 46$
 - b. $x + 8 = 15$
 - c. $y + 11 = 43$
 - d. $y + 21 = 58$
37. **Model with mathematics.** Janice has 27 feet of ribbon. How many more feet does she need to buy so that she will have 82 feet of ribbon? Define a variable, write an equation, and solve it algebraically.
38. Which situation could represent the equation $x + 12 = 21$?
- A. Huy bought 21 gallons of cider. Twelve gallons of cider were used at the class party. How many gallons of cider are left?
 - B. Huy bought 21 cases of oil. Each case of oil cost \$12. What was the total that Huy spent?
 - C. Huy spent a total of 21 dollars on 12 books. How much did each book cost?
 - D. Huy has 12 hats. How many more hats does he need to buy to have a total of 21 hats?
39. What is the solution to the equation $a + 32 = 96$?
- A. $a = 128$
 - B. $a = 64$
 - C. $a = 32$
 - D. $a = 3$

40. **Make sense of problems.** Renee can bike five miles in 30 minutes. Susan can bike five miles in 42 minutes. How much longer does it take Susan than Renee to bike 30 minutes? Define a variable, write an equation, and solve it algebraically.

LESSON 13-3

41. Jerome is driving to his vacation home. After driving 60 miles, he still has 175 miles to go. How many miles is his vacation home from where he started?
- a. Define a variable.
 - b. Write an equation.
 - c. Solve the equation.
42. Cora owes \$250 on her new jet ski. She has already paid \$730 on it. Which equation models determining the original cost of the jet ski?
- A. $x + 250 = 730$
 - B. $x - 250 = 730$
 - C. $x - 730 = 250$
 - D. $x + 730 = 250$
43. **Critique the reasoning of others.** Dae Youn says that he could solve the equation $x - 4 = 12$ using the balance scale method by subtracting 4 from each side of the scale. Do you think his reasoning is correct? Explain.
44. Badri has some bagels to sell at the farmer's market. If he sells 8 dozen he will have 24 dozen left. How many dozen bagels did he have to begin with?
- A. 12 dozen
 - B. 16 dozen
 - C. 32 dozen
 - D. 40 dozen

- 45. Model with mathematics.** Bargain Basement has a coat on sale for \$82. The sign on the rack says that the price is \$25 off the original price. What was the original price? Define a variable and equation for this situation. Solve the equation.

LESSON 13-4

- 46.** Solve each equation.

a. $w - 9 = 23$

b. $b - 32 = 4$

c. $w - \frac{3}{4} = \frac{7}{8}$

d. $r - 5.43 = 43.29$

- 47. Model with mathematics.** Which situation could represent the equation $x - 12 = 21$?

- A. Huy bought 21 gallons of cider. Twelve gallons of cider were used at the class party. How many gallons of cider are left?
- B. Huy bought 21 cases of oil. Each case of oil cost \$12. What was the total that Huy spent?
- C. Huy spent a total of 21 dollars on 12 books. How much did each book cost?
- D. Huy sold 12 hats, and he has 21 left. How many hats did Huy start with?

- 48.** Solve $x - 13 = 6$

- A. $x = 7$
- B. $x = 19$
- C. $x = 20$
- D. $x = 78$

- 49. Make sense of problems.** Lita is putting pictures in an album. She has mounted 21 pictures and still has 52 left. How many pictures does Lita have?

- a. Define a variable.
- b. Write an equation.
- c. Solve the equation.

- 50.** Solve $t - 34 = 102$

- A. $t = 68$
- B. $t = 72$
- C. $t = 136$
- D. $t = 142$

LESSON 14-1

- 51.** Use guess and check or mental math to solve each equation.

- a. $15x = 45$
- b. $144 = 12a$
- c. $8w = 64$
- d. $32 = 4q$

- 52.** Adita bought 50 beads. She paid \$6 for the beads. How much did each bead cost?

- A. \$0.03
- B. \$0.06
- C. \$0.08
- D. \$0.12

- 53. Model with mathematics.** Gim made \$9 per hour working as a lifeguard. How many hours did he work this week if his weekly pay before deductions was \$288? Define a variable and write an equation. Solve the equation.

54. Dwight bought amusement park tickets for himself and 7 friends. The total price of the tickets was \$336. How much did each ticket cost?

A. \$38
B. \$40
C. \$42
D. \$48

55. **Use appropriate tools.** The Circle C Farm has 1,500 chickens. They separate the chickens into 6 different areas. How many chickens are in each area? Define a variable and write an equation. Solve the equation.

LESSON 14-2

56. Solve each equation algebraically.

a. $6y = 180$
b. $3.1r = 13.95$
c. $12a = 180$
d. $\frac{3}{4}w = 27$

57. **Make use of structure.** Four-fifths of the 4-H members who entered chickens in the county fair exhibited them at the fair. If 52 members exhibited their chickens at the fair, how many members took a chicken project? Write an equation and solve it algebraically.

58. Solve the equation. $18 = 2.5x$

A. $x = 7.2$
B. $x = 8.1$
C. $x = 15.5$
D. $x = 45$

59. **Reason abstractly.** A package of markers contains 12 markers. How many packages must you buy to have 420 markers? Define a variable, write an equation, and solve it.

60. The sixth grade class, which consists of 120 students, is going on a field trip by van. Each van can hold 15 students. How many vans will they need?

A. 6 vans
B. 8 vans
C. 10 vans
D. 12 vans

LESSON 14-3

61. Solve each equation.

a. $\frac{a}{12} = 7$
b. $18 = \frac{w}{0.2}$
c. $9 = \frac{d}{7}$
d. $\frac{f}{8} = 24$

62. The cost of a band trip is to be divided equally among 42 members of the band. Each band member will pay \$310. Which equation can be used to find the total cost of the trip?

A. $\frac{c}{42} = 320$
B. $\frac{320}{c} = 42$
C. $c + 42 = 320$
D. $42c = 320$

63. Make sense of problems. Which situation can be represented by the equation $\frac{x}{5} = 15$?

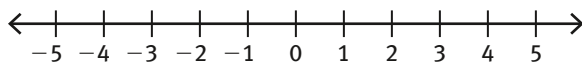
- A. Mavis has 15 gallons of cider that she distributes to 5 classrooms. How much cider does each classroom receive?
- B. A band is lining up on the football field in five rows. There are 15 band members in each row. How many band members are there?
- C. Lian has 15 dozen balloons. She divides the balloons up into 5 bunches. How many dozen balloons are in each bunch?
- D. A photo album contains 15 pictures. There are 5 pictures on each page. How many pages are used in the album?

64. Dwight wants to buy a camera that is on sale for 25% off. The original price of the camera is \$300. What is the amount of the discount? Define a variable, write a division equation and solve algebraically.

65. Critique the Reasoning of Others. Renee says that the equations $\frac{t}{8} = 32$ and $\frac{t}{32} = 8$ have the same solution. Is she correct? Explain.

LESSON 15-1

66. Graph the possible solutions for $x \geq 3$.



67. The temperature must be greater than 65°F for the pool to be open. Which inequality represents the statement?

- A. $x > 65$
- B. $x < 65$
- C. $x \geq 65$
- D. $x \leq 65$

68. Attend to precision. Write the inequality that describes each situation.

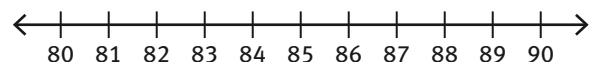
- a. The trampoline can hold no more than 250 pounds.
- b. More than five fish were in the tank.
- c. Water bills cost at least \$30 per month.
- d. There were less than 12 children on the playground.

69. Nina can use her electronics no more than 60 minutes per day. Which inequality represents the statement?

- A. $x < 60$
- B. $x > 60$
- C. $x \geq 60$
- D. $x \leq 60$

70. Model with mathematics. A bus can hold no more than 86 students.

- a. Write an inequality to describe the situation.
- b. Graph the inequality.



LESSON 15-2

71. Which is the solution to $4.2 + x \leq 11.7$?

- A. $x \geq 7.5$
- B. $x \leq 7.5$
- C. $x \leq 15.9$
- D. $x \geq 15.9$

72. Persevere in solving problems. The number of puppies that a local dog pound can care for is 55. Find the number of puppies that can be taken in if there are already 36 puppies in the pound.

- Define the variable.
- Determine the inequality symbol.
- Write the inequality.

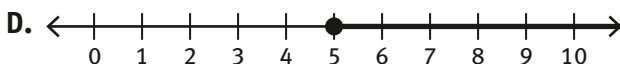
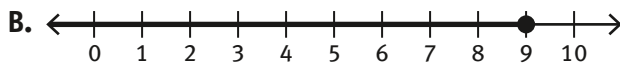
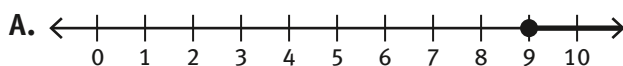
73. Solve each inequality.

- $x + 19 \leq 52$
- $4x > 13$
- $x - 7.4 < 11.2$
- $x + \frac{9}{2} \geq 8$

74. Model with mathematics. Write an inequality that represents each situation.

- A dance class needs a minimum of 12 students. At this time, four have signed up for the class.
- Madison can invite at most 15 friends to her birthday party. At this time she has 9 on her list to invite.
- George has sold 15 tubs of cookie dough in his school fundraiser. He needs to sell over 25 tubs to go on the class trip.

75. Which graph is the solution to the inequality $x - 7 \geq 2$?



LESSON 16-1

76. Helena walks each evening. Each mile she walks takes her 15 minutes.

- Make a table like the one shown below to show how far she travels for the first 5 miles.

Distance (miles)	Time (minutes)

- Use the table created for Helena walking to write an equation for the relationship if she travels d miles in m minutes.
- How far will Helena travel if she walks for 105 minutes?

77. Marsha can knit 6 rows of an afghan in an hour. How many rows will she complete in 3 hours?

- 12
- 18
- 21
- 24

78. Persevere in solving problems. Jesse pays \$36 per month for his phone bill. How much will he pay during his two year contract?

79. Kelvey takes 45 minutes to clean a hotel room. After 3 hours, how many rooms will Kelvey have cleaned?

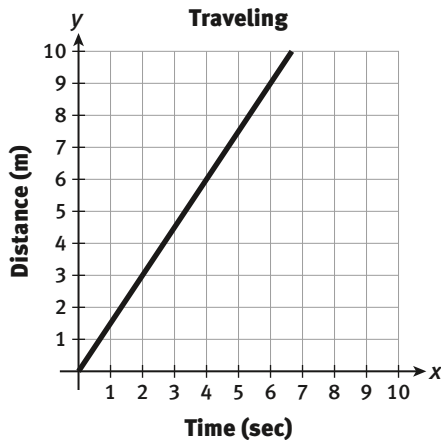
- 4
- 6
- 10
- 15

80. Make use of structure. Jesse drives at a constant rate. The equation that represents this relationship is $d = 55t$, where d is the distance in miles and t is the time in hours.

- What does the constant 55 tell you about Jesse?
- What question is answered by $d = 6(55)$?

LESSON 16-2

81. Which ordered pair is located on the graph?



- (0, 4)
- (2, 2)
- (4, 6)
- (6, 8)

82. Model with mathematics. Marcelita works 5 days a week. Each day she goes to work, she works 4 hours. Create a table showing how many hours she works over 5 days.

83. Using the table in Item 82, graph the data showing days on the x -axis and hours on the y -axis.

84. Based on the table, what would the output be when the input is 6?

Input x	$x + 7$	Output y
1	$1 + 7$	8
2	$2 + 7$	9
6		

- 11
- 13
- 15
- 17

85. Make use of structure. Nick is 5 years older than his brother Sal.

- Use this information to make a table to show the relationship between their ages.
- Use the variables x and y to write an equation to represent the relationship, when Nick's age is y and Sal's age is x .
- Describe the variables as either independent or dependent.