Do not lose this!

This is your homework for the foreseeable future!!!

Exercises

In Exercises 1–4, write an algebraic expression or equation for each.

1. five years older than Jamal's age
2. The area is the length of a side squared.
3. The price is \$1.35 per flower plus \$12.50 for the vase.
4. The cost of the meal plus the 15% tip came to \$12.95.
5. Super Locks charges \$3,975 to install a security system and \$6.00 per month to monitor the system and respond to alerts. Fail Safe charges \$995 to install and \$17.95 per month. Write an equation for each company relating its total cost to the number of months.
6. Maggie lives 1,250 meters from school. Ming lives 800 meters from school. Maggie walks at an average speed of 70 meters per minute, while Ming walks at an average speed of 40 meters per minute. Write equations that show Maggie and Ming's distances from school t minutes after they leave their homes.
7. Chris has \$12 to spend on prints from his digital camera. He wants one 5-in. × 7-in. print and some 4-in. × 6-in. prints. Write an equation to find how many prints he can order if the price of each 5-in. × 7-in. print is \$1.40 and the 4-in. × 6-in. prints are \$.20 each.
8. Jamal has a tutoring job. He charges \$15 per hour. Next month, he expects his expenses to be \$30. Write an equation to find the number of hours he must work next month to make a profit of \$300.

Write an algebraic expression for each situation.

9. the cost of x apples at \$0.49 each

10. the number of hits a 0.306 batter gets in b times at bat

11. the number of minutes it takes to read p pages at 10 minutes per page

12. the money left on a \$20 gift card after spending y dollars

13. the distance traveled over t hours at r miles per hour

Evaluate each algebraic expression for $a = 12$ and $b = 3$.

14. $a - 2$ **15.** $5a$ **16.** $a + b$ **17.** $\frac{3a}{2b}$

Evaluate each algebraic expression for $d = \frac{3}{4}$, $e = \frac{4}{9}$, and $f = \frac{1}{2}$.

18. $d + f$ **19.** de **20.** $f - e$ **21.** $4d + 2f$

Write a situation that could describe each algebraic expression.

22. $a + 24$ **23.** $365 - d$ **24.** $7w$ **25.** $\frac{m}{55}$

26. At a craft store, each package of beads costs \$3.95.

a. Write an algebraic expression for the cost for p packages of beads.

b. Amy gives the sales clerk \$20 for p packages of beads. Write an algebraic expression to represent Amy's change.

c. What is the greatest number of packages that Amy can buy with \$20?

For Exercises 27–34, decide which operation is needed to isolate the variable. Solve the equation.

27. $a + 6 = 14$

28. $b - 3 = 9$

29. $4d = 12$

30. $7 + t = 15$

31. $\frac{x}{2} = 5$

32. $\frac{n}{9} = 6$

33. $y - 13 = 29$

34. $11h = 132$

35. Greg counted 11 people who got on the bus at the last stop. Now every seat is filled. How many people were on the bus before the stop if the bus has seats for 42 people?

36. There are four dozen daisies in a vase. If every person receives three daisies until the daisies are gone, how many people will get daisies?

37. A flower garden has 18 square feet of space. A packet of seeds fills 2 square feet. How many packets of seeds are needed to fill the garden?

38. Becky wants to solve the equation $3x = 18$. She says that $18 - 3 = 15$, so $x = 15$. Explain to Becky how to find the correct answer.

For Exercises 39 and 40, write an algebraic expression.

39. seven times a number

40. a number of objects is split into 6 equal groups

For Exercises 41–44, evaluate each expression.

41. $12x$ for $x = 7$

42. $112 \div x$ for $x = 7$

43. $2x - 3$ for $x = 9$

44. $\frac{x}{5} + 6$ for $x = 400$

For Exercises 45 and 46, use the information below.

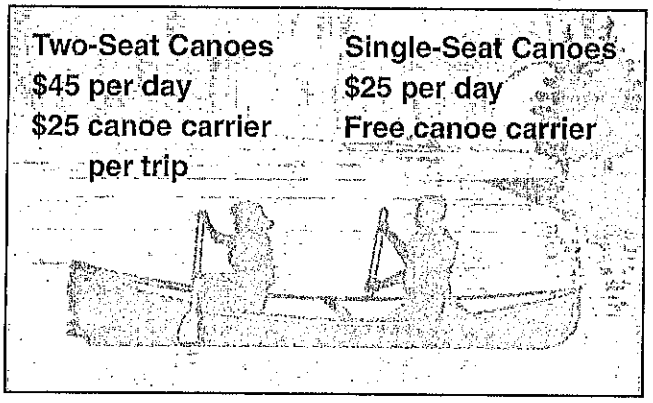
Jennifer pays an \$80 down payment on a violin. She will pay the rest off at \$20 a week.

45. What expression can Jennifer use to represent this situation? Explain what the variable represents.

46. If the violin costs \$400, how long will it take Jennifer to pay for it?

For Exercises 47–50, use this information and advertisement.

Grace and Tina are planning a canoeing trip. They are deciding whether they should rent 2 single-seat canoes or 1 two-seat canoe. Also, they will need to rent a canoe carrier.



47. What information is needed to find the cost of renting the canoes?

48. What expression can Grace and Tina use to find the cost of renting a two-seat canoe?

49. What expression can they use to find the cost of renting 2 single-seat canoes?

50. For a 4-day trip, which type of canoe should Grace and Tina rent if they want to spend the least amount of money? Explain.

For Exercises 51 and 52, use the information below.

Roses cost $20 per dozen. The delivery fee for any order is $8.

51. If r represents the number of dozen roses, write an expression to represent the cost of r dozen roses including delivery.

52. What is the total cost of having 3 dozen roses delivered?

53. Lilah buys 2 board games. Each board game costs g dollars. She has a $6 credit from a previous purchase. Write an expression to represent the amount Lilah pays for the two games.

For Exercises 54–55, use the information and table below.

The Johnson family is having a party. They need to buy paper plates, plastic forks, and plastic spoons. The table shows how each is sold.

Item	Number in a Package
Paper Plates	x
Plastic Forks	y
Plastic Spoons	z

54. a. The Johnsons bought 3 packages of paper plates and 4 packages of plastic forks. Write an expression to represent the number of paper plates and plastic forks they bought altogether.

b. There are 100 paper plates in a package and 50 plastic forks in a package. Find how many plates and forks the Johnsons bought.

55. a. Write an expression to find the number of packages needed to buy 375 plastic spoons.

b. If there are 75 plastic spoons in a package, how many packages were bought?

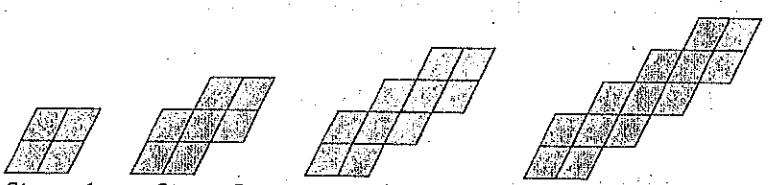
For Exercises 56 and 57, use the information below.

Luz is making a tabletop design with tiles. For each step in his pattern he can determine the number of tiles he needs by multiplying the step number by 6 and subtracting 2.

56. How many tiles will he need for the sixteenth step?

57. In which step will Luz need to use exactly 70 tiles?

For Exercises 58–61, use the figures shown below.



58. Copy and complete the table to show how many tiles are in each figure.

Stage	1	2	3	4
Number of Tiles				

59. Let s be the stage number. Write a rule for finding the number of tiles needed for any stage in the pattern.

60. How many tiles are needed for the ninth stage?

61. If you have 100 tiles, what is the largest stage you can complete?

For Exercises 62–64, use the Input-Output table below.

Input (x)	16	24	40	52
Output (y)	2	4	8	11

62. Write a rule that can be used to find y if x is given.

63. If you know $x = 100$, how can you find y? Give the value.

64. If you know $y = 20$, how can you find x? Give the value.

65. Multiple Choice Matt earns \$10 for mowing his neighbor's lawn and \$5 an hour for cleaning out the garage. The equation $e = 10 + 5h$ can be used to find his earnings. If he earned \$40, how many hours did it take him to clean out the garage?

A. 4 **B.** 6 **C.** 10 **D.** 210

66. A field is twice as long as it is wide. Let w represent the field's width.

a. Write an expression to represent the length of the field.

b. The field is 40 meters wide. What is the field's length?

For Exercises 67 and 68, find the value of x.

67. $7.2 + x = 14.1$

68. $\frac{3}{10} = x + \frac{1}{5}$

69. Five friends ate lunch at a restaurant. They had a coupon for \$20 off their total bill. The group's total came to \$20 after they used the coupon.

a. Each person's lunch had the same price. Write an equation that can be used to determine the price of one lunch.

b. Solve the equation.

70. The table shows the relationship between the number of melons bought and the total cost.

Number Bought	Total Cost
10	\$25
15	\$37.50
30	\$75

a. Write an expression to find the total cost of buying any number of melons.

b. Sheila is going to buy 62 melons for a banquet. What will be the total cost?

71. Kelly is x years old. Mike is 2 years older than twice Kelly's age. The sum of Kelly's and Mike's ages is 26. How old are Kelly and Mike?

For Exercises 72–78, name the property illustrated in each equation.

72. $0.85 + (3.5 + 4.15) = (0.85 + 3.5) + 4.15$

73. $3d - 15 = 3(d - 5)$

74. $0 + (-1.6) + 2.4 = -1.6 + 2.4$

75. $\frac{1}{2} \times \frac{2}{1} \times \frac{1}{4} = 1 \times \frac{1}{4}$

76. $15(2c - 8) = 30c - 120$

77. $-3.2 + (-8.5x) = -8.5x + (-3.2)$

78. $123 + (-43) + 0 + (-15) = 123 + (-43) + (-15)$

79. A carpenter cuts lengths of wood into equal 3-ft. sections. Write an expression to represent the total length of wood the carpenter needs to make n sections. Evaluate the expression for $n = 7, 10$, and 15.

For Exercises 80–82, simplify each expression. Use a property or operation to justify each step.

80. $-4 + \frac{5}{2} + \frac{6}{5} + \frac{7}{2} + \frac{4}{5}$

81. $5m + 6 + 3(m + 2)$

82. $-2\left(\frac{1}{2}k + \frac{1}{3}\right) + 6 + \frac{2}{3}$

83. Copy and complete the table for the given x-values.

x-value	$3(x + 4)$	$3x + 4$	$3x + 12$	$2(x + 6) + x$	$5x + (2x + 12)$
2					
5					
10					

Which of the expressions in the top row are equivalent?

84. Multiple Choice Which expression is not equivalent to the others?

A. $6(x - 2)$

B. $2(x - 6) + 4x$

C. $6x - 12$

D. $7x - (2x + 12)$

For Exercises 85–88, find the equivalent expression from the box at the right.

85. $c + c + c$

86. $4c - 2 - 3c + 16$

87. $c + c + c + c + 2 + 4$

88. $3c + 6c - 8c$

a. c
b. $3c$
c. $c + 14$
d. $4c + 6$

89. Pat earns $9 per hour working as a lifeguard.

a. Write an algebraic equation to represent the relationship between the number of hours Pat works, and the amount that she earns.

b. Identify the dependent and independent variables in the equation.

c. Use your equation to complete the table to show the money earned for working during the week.

Week Ending July 30th						
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Hours Worked	8	6	7	8	4	5
Earnings (in $)						

For Exercises 90–93, write an algebraic equation to relate the quantities.

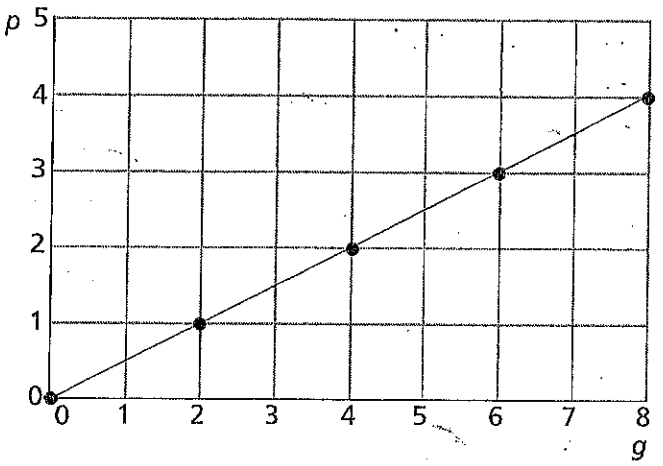
90. Michael rides his bike at an average speed of 18 mi/hr for t hours. He travels a total distance of d miles.

91. Susan is y years old. She is 8 years younger than her brother, who is x years old.

92. The circumference, c, of any circle is 2π times its radius, r.

93. An object's mass in kilograms, w, is its mass in grams, z, divided by 1,000.

94. Multiple Choice The solutions to which equation are shown on this graph?



A. $g = \frac{p}{2}$

B. $p = \frac{g}{2}$

C. $p = g - 2$

D. $g = p + 2$

95. The table shows the prices of some produce at a farmers' market.

Apples	\$7 per basket
Pears	\$7 per basket
Corn	\$0.75 per ear
Asparagus	\$3.50 per bundle
Broccoli	\$2.50 per bag

Write two equivalent algebraic expressions to represent the total cost.

a. some ears of corn

b. 3 baskets of apples and some baskets of pears

c. some baskets of apples, 2 baskets of pears, and 4 ears of corn