7th Grade Pre-Algebra   Name_____
Study Guide Test 3 Expressions and Equations   Date_____

Write each as an algebraic expression.

1) x divided by 5

2) 6 increased by a

3) the product of 3 and 11

4) the difference of n and 16

5) 2 squared

6) 9 more than k

7) the quotient of u and 7

8) 14 less than 21

9) 5 cubed

10) the sum of n and 11

11) n cubed is 15

12) the sum of n and 5 is 28

13) x decreased by 3 is equal to 12

14) the quotient of a and 5 is 47

15) the product of n and 9 is equal to 32

16) 7 less than w is 15

17) x squared is equal to 32

18) k increased by 10 is 37

19) the product of n and 5 is 30

20) n decreased by 20 is equal to 12

Solve each equation.

21) $11 = x + 5$

22) $\dfrac{p}{17} = \dfrac{18}{17}$

23) $-23 = -16 + n$

24) $m + 13 = 2$

25) $r - 8 = 10$

26) $x - 19 = -14$

27) $-8n = -80$

28) $-11b = 121$

29) $153 = 9v$

30) $-15 = \dfrac{x}{3}$

Solve Each one-step word problem

31) At a restaurant, Shreya and her 4 friends decided to divide the bill evenly. If each person paid $11.66 then what was the total bill?

32) Willie was 74 years old fifteen years ago. How old is he now?

33) Six workers are hired to harvest potatoes from a field. Each is given a plot which is 10×12 feet in size. What is the total area of the field?

34) If the weight of a package is multiplied by $\dfrac{7}{10}$ the result is 35 pounds. Find the weight of the package.

35) Nine workers are hired to seed a field by hand. Each is given a plot which is 6×6 feet in size. What is the total area of the field?

36) Maria won 35 lollipops playing horseshoes. After giving some away she only has 21 remaining. How many did she give away?

37) Last week Matt ran 32 miles more than Jenny. Matt ran 47 miles. How many miles did Jenny run?

38) Stefan and his best friend found some money buried in a field. They split the money evenly, each getting $24.43. How much money did they find?

39) Last Friday James had $33. Over the weekend he received some money for washing the car. He now has $53. How much money did he receive?

40) Chelsea spent $46.20 on tissues. If they cost $6.60 / box, how many boxes did she buy?

Solve each equation.

41) $-5 = 3r + 4$

42) $-125 = 1 - 7m$

43) $-171 = 9 - 10x$

44) $-1 = \dfrac{-10 + n}{4}$

45) $\dfrac{10 + v}{24} = 1$

46) $-2 = \dfrac{b + 7}{4}$

47) $-2 = \dfrac{8 + x}{5}$

48) $9 = 10 + \dfrac{x}{15}$

49) $\dfrac{a}{5} - 6 = -3$

50) $4 = 9 + \dfrac{k}{2}$

Write an equation and solve.

51) Scott spent half of his weekly allowance on candy. To earn more money his parents let him weed the garden for $7. What is his weekly allowance if he ended with $17?

52) Julia was going to sell all of her stamp collection to buy a video game. After selling half of them she changed her mind. She then bought twenty more. How many did she start with if she now has 38?

53) Mofor won 98 lollipops playing horseshoes at his school's game night. Later, he gave three to each of his friends. He only has 5 remaining. How many friends does he have?

54) Darryl had some candy to give to his four children. He first took nine pieces for himself and then evenly divided the rest among his children. Each child received three pieces. With how many pieces did he start?

55) The sum of three consecutive odd numbers is 39. What is the smallest of these numbers?

56) Elisa rented a bike from Jaidee's Bikes. It cost $10 plus $2 per hour. If Elisa paid $14 then she rented the bike for how many hours?

57) For a field trip 30 students rode in cars and the rest filled five buses. How many students were in each bus if 230 students were on the trip?

58) You bought a magazine for $3 and seven candy bars. You spent a total of $17. How much did each candy bar cost?

59) A wise man once said, "500 reduced by 3 times my age is 218." What is his age?

60) Kristin had some candy to give to her five children. She first took two pieces for herself and then evenly divided the rest among her children. Each child received three pieces. With how many pieces did she start?

Solve each equation.

61) $-8(7 + 8n) = -56$

62) $61 = 8(1 - 3a) + 5$

63) $-8(k - 3) = 8$

64) $-40 = -2x - 6(x - 4)$

65) $-5(x - 4) - 5 = 35$

66) $-8(-4 - 3n) = -40$

67) $60 = 6(-4 - 2m)$

68) $-2(2p - 6) = 32$

69) $24 = 3(n + 3)$

70) $8(3x + 1) - 7 = -47$

71) $5b + 6 = 4(b + 2)$

72) $-2r + 5(1 + 2r) = -7r - 25$

73) $-31 + 7x = -5(2 - 2x)$

74) $-2n - 8(2n - 1) = 27 + n$

75) $5(3b + 1) = 29 + 7b$

76) $2 - v = -2 + 2(6v + 2)$

77) $-1 + 4(1 - 8x) = -5x - 24$

78) $5(1 - 8x) = 5 - 4x$

79) $-21 - 3a = a + 7(a + 8)$

80) $8(k + 8) = -16 - 2k$

Answers to Study Guide Test 3 Expressions and Equations

1) $\dfrac{x}{5}$

2) $6 + a$

3) $3(11)$

4) $n - 16$

5) 2^2

6) $k + 9$

7) $\dfrac{u}{7}$

8) $21 - 14$

9) 5^3

10) $n + 11$

11) $n^3 = 15$

12) $n + 5 = 28$

13) $x - 3 = 12$

14) $\dfrac{a}{5} = 47$

15) $n \cdot 9 = 32$

16) $w - 7 = 15$

17) $x^2 = 32$

18) $k + 10 = 37$

19) $n \cdot 5 = 30$

20) $n - 20 = 12$

21) $\{6\}$

22) $\{18\}$

23) $\{-7\}$

24) $\{-11\}$

25) $\{18\}$

26) $\{5\}$

27) $\{10\}$

28) $\{-11\}$

29) $\{17\}$

30) $\{-45\}$

31) $\dfrac{x}{5} = 11.66$; $58.30

32) x - 15 = 74; 89 years old

33) $\dfrac{x}{6} = 10(12)$; 720 square feet

34) $\dfrac{7}{10}x = 35$; 50 pounds

35) $\dfrac{x}{9} = 6(6)$; 324 square feet

36) 35 - x = 21; 14 lollipops

37) x + 32 = 47; 15 miles

38) $\dfrac{x}{2} = 24.43$; $48.86

39) 33 + x = 53; $20

40) 6.6x = 46.2; 7 boxes

41) $\{-3\}$

42) $\{18\}$

43) $\{18\}$

44) $\{6\}$

45) $\{14\}$

46) $\{-15\}$

47) $\{-18\}$

48) $\{-15\}$

49) $\{15\}$

50) $\{-10\}$

51) $\dfrac{x}{2} + 7 = 17$; $20

52) $\dfrac{x}{2} + 20 = 38$; 36 stamps

53) 98 - 3x = 5; 31 lollipops

54) $\dfrac{x - 9}{4} = 3$; 21 pieces of candy

55) x + x + 2 + x + 4 = 39; number 11

56) 10 + 2x = 14; 2 hours

57) 30 + 5x = 230; 40 students

58) 3 + 7x = 17; $2

59) 500 - 3x = 218; 94 years old

60) $\dfrac{x - 2}{5} = 3$; 17 pieces of candy

61) $\{0\}$

62) $\{-2\}$

63) $\{2\}$

64) $\{8\}$

65) $\{-4\}$

66) $\{-3\}$

67) $\{-7\}$

68) $\{-5\}$

69) $\{5\}$

70) $\{-2\}$

71) $\{2\}$

72) $\{-2\}$

73) $\{-7\}$

74) $\{-1\}$

75) $\{3\}$

76) $\{0\}$

77) $\{1\}$

78) $\{0\}$

79) $\{-7\}$

80) $\{-8\}$