HW1 Date: _____ Name_____

Use Scantron 882E to transfer the answers.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Decide if the statement is true or false.

1) –2 is a solution of $9x + 2x = 10x$. 1) _____

A) True B) False

Decide whether the following is an expression or an equation.

2) $3x - (2x - 1) = 2$ 2) _____

A) Equation B) Expression

Solve the equation.

3) $(y - 7) - (y + 7) = 9y$ 3) _____

A) $\left\{-\frac{14}{9}\right\}$ B) $\left\{-\frac{2}{9}\right\}$ C) $\left\{-\frac{14}{5}\right\}$ D) $\{-2\}$

4) $3m + 7 + 5(2m - 3) = 3(m + 3)$ 4) _____

A) $\left\{\frac{17}{16}\right\}$ B) $\left\{\frac{1}{10}\right\}$ C) $\left\{\frac{17}{10}\right\}$ D) $\left\{\frac{31}{10}\right\}$

5) $-6x + 5(-2x - 5) = -32 - 9x$ 5) _____

A) {1} B) $\left\{\frac{57}{25}\right\}$ C) $\left\{\frac{57}{7}\right\}$ D) {–1}

6) $-[8x + (2x + 7)] = 1 - (9x + 3)$ 6) _____

A) $\{-5\}$ B) $\{-1\}$ C) $\{3\}$ D) $\left\{\frac{5}{3}\right\}$

Decide whether the equation is conditional, an identity, or a contradiction. Give the solution set.

7) $16m + 6 = 2(5m + 21)$ 7) _____

A) Identity; {all real numbers} B) Conditional; {6}

C) Conditional; {–8} D) Contradiction; ∅

8) $2(3g + 34) - 6g - 68 = 0$ 8) _____

A) Conditional; {3} B) Identity; {all real numbers}

C) Conditional; {0} D) Contradiction; ∅

9) $-6s - 1 + 3(2s + 1) = 0$ 9) _____

A) Conditional; {1} B) Identity; {all real numbers}

C) Conditional; {2} D) Contradiction; ∅

Solve the equation.

10) $\frac{f}{4} - 5 = 1$ 10) _____

A) {16} B) {–24} C) {24} D) {–16}

11) $\frac{2x}{5} - \frac{x}{3} = 4$ 11) _____

A) {120} B) {–60} C) {–120} D) {60}

12) $\frac{p}{4} - \frac{3p}{8} = 3$ 12) _____

A) {–21} B) {–24} C) {24} D) {21}

13) $\frac{r + 6}{3} = \frac{r + 8}{6}$ 13) _____

A) {3} B) {4} C) {–12} D) {–4}

14) $\frac{3x + 8}{5} + \frac{7}{5} = -\frac{7x}{4}$ 14) _____

A) $\left\{-\frac{4}{47}\right\}$ B) $\left\{\frac{4}{47}\right\}$ C) $\left\{\frac{60}{23}\right\}$ D) $\left\{-\frac{60}{47}\right\}$

15) $0.01x + 0.1(x + 20{,}000) = 2220$ 15) _____

A) {200,000} B) {2000} C) {200} D) {20,000}

16) $-0.08y + 0.13(9000 - y) = 0.29y$ 16) _____

A) {7020} B) {2340} C) {585} D) {5850}

Solve the equation for the specified variable. Use the distributive property to factor as necessary.

17) $-8k + ar = r - 8y$ for r 17) _____

A) $r = \frac{-8k + a}{1 - 8y}$ or $r = \frac{8k - a}{8y - 1}$

B) $r = \frac{a - 1}{8k - 8y}$ or $r = \frac{1 - a}{-8k + 8y}$

C) $r = \frac{8k - 8y}{a - 1}$ or $r = \frac{-8k + 8y}{1 - a}$

D) $r = \frac{-8k + 8y}{a - 1}$ or $r = \frac{8k - 8y}{1 - a}$

18) $w = \frac{8y - x}{y}$ for y 18) _____

A) $y = \frac{-x}{w - 8}$ or $y = \frac{x}{8 - w}$

B) $y = \frac{8 - x}{w}$ or $y = \frac{x - 8}{-w}$

C) $y = \frac{w - 8}{-x}$ or $y = \frac{8 - w}{x}$

D) $y = \frac{x}{w - 8}$ or $y = \frac{-x}{8 - w}$

19) $-3k + ar = r - 6y$ for r 19) _____

A) $r = \frac{a - 1}{3k - 6y}$ or $r = \frac{1 - a}{-3k + 6y}$

B) $r = \frac{-3k + a}{1 - 6y}$ or $r = \frac{3k - a}{6y - 1}$

C) $r = \frac{-3k + 6y}{a - 1}$ or $r = \frac{3k - 6y}{1 - a}$

D) $r = \frac{3k - 6y}{a - 1}$ or $r = \frac{-3k + 6y}{1 - a}$

20) $w = \frac{4y - x}{y}$ for y 20) _____

A) $y = \frac{-x}{w - 4}$ or $y = \frac{x}{4 - w}$

B) $y = \frac{w - 4}{-x}$ or $y = \frac{4 - w}{x}$

C) $y = \frac{x}{w - 4}$ or $y = \frac{-x}{4 - w}$

D) $y = \frac{4 - x}{w}$ or $y = \frac{x - 4}{-w}$

Solve the equation for y.

21) $4x + 5y = 6$ 21) _____

A) $y = -20x + 30$ B) $y = \frac{6 + 4x}{5}$ C) $y = \frac{-6 - 4x}{5}$ D) $y = \frac{6 - 4x}{5}$

22) $-5x + 7y = 3$ 22) _____

A) $y = \frac{-3 - 5x}{7}$ B) $y = \frac{3 + 5x}{7}$ C) $y = 35x + 21$ D) $y = \frac{3 - 5x}{7}$

23) $-7x - 7y = 2$ 23) _____

A) $y = \frac{2 + 7x}{-7}$, or $y = \frac{-7x - 2}{7}$

B) $y = \frac{-2 - 7x}{-7}$, or $y = \frac{7x + 2}{7}$

C) $y = \frac{-2 + 7x}{-7}$, or $y = \frac{2 - 7x}{7}$

D) $y = \frac{2 - 7x}{-7}$, or $y = \frac{7x - 2}{7}$

Solve the problem.

24) Find the corresponding Celsius temperature for a temperature of 232°F. Round to the nearest tenth, if necessary. 24) _____

A) 449.6°C B) 125.3°C C) 360°C D) 111.1°C

25) Find the corresponding Fahrenheit temperature for a temperature of 88°C. Round to the nearest tenth, if necessary. 25) _____

A) 66.7°F B) 216°F C) 190.4°F D) 31.1°F

26) What is the perimeter of a rectangle of length 25 ft and width 10 ft? 26) _____

A) 140 ft B) 35 ft C) 70 ft D) 60 ft

27) What is the area of a square with side 1.8 cm? 27) _____

A) 3.24 cm^2 B) 3.6 cm^2 C) 5 cm^2 D) 12.96 cm^2

28) Find the area of a triangle with height 6 m and base 12 m. 28) _____

A) 9 m^2 B) 72 m^2 C) 36 m^2 D) 144 m^2

29) Find the surface area of a cylinder with a radius of 2 cm and a height of 40 cm. Use 3.14 for π. 29) _____

A) 1507.2 cm^2 B) 514.96 cm^2 C) 527.52 cm^2 D) 502.4 cm^2

30) Find the simple interest if $3800 is borrowed at 14.9% for 6 months (0.5 yr). 30) _____

A) $127.52 B) $1132.40 C) $28,310.00 D) $283.10

31) Find the simple interest if $3300 is invested at 6.9% for 4 years. 31) _____
A) $910.80 B) $1913.04 C) $56.92 D) $227.70

32) Find the total amount in an account if $800 is invested at 17% simple interest for 1.5 years. 32) _____
A) $204.00 B) $1004.00 C) $870.59 D) $936.00

33) Find the total amount that must be repaid if $2800 is borrowed at 14.9% simple interest for 2 years. 33) _____
A) $3175.84 B) $3217.20 C) $834.40 D) $3634.40

34) Students at East Central High School earned $760 selling pennants. They want to make $3980 for a club trip. What percent of their goal has been reached? Round to the nearest tenth of a percent, if necessary. 34) _____
A) 5.2% B) 1.9% C) 52% D) 19.1%

35) Tech Support spent $43,790 this year on advertising alone. If total sales were $736,200, what percent of total sales was spent on advertising? Round to the nearest tenth of a percent, if necessary. 35) _____
A) 5.9% B) 168% C) 16.8% D) 0.6%

36) A printer priced at $581 is sold for $411. What was the percent of price reduction? Round to the nearest tenth of a percent, if necessary. 36) _____
A) 29.3% B) 341.8% C) 141.4% D) 70.7%

Translate the verbal phrase into a mathematical expression. Use x to represent the unknown number.

37) 70 more than a number 37) _____
A) 70x B) 70 + x C) 70 D) 70 – x

38) 58 less than a number 38) _____
A) x – 58 B) x + 58 C) 58x D) 58 – x

39) A number divided by 98 39) _____
A) 98 + x B) $\frac{x}{98}$ C) 98x D) 98 – x

40) Four times a number added to 7 40) _____
A) 4x + 7 B) 4x(7 + x) C) 4x – 7 D) 4(x + 7)

41) The product of 4 more than a number and 2 less than the number 41) _____
A) x + 4(x – 2) B) (x + 4)(x – 2) C) (x + 4) – 2 D) (x + 4)(2 – x)

Use the variable x for the unknown, and write an equation representing the verbal sentence. Then solve the problem.

42) Four times a number added to 7 times the number equals 33. 42) _____
A) 4(x + 7) = 33x; –3 B) 4x(7 + x) = 33; –3
C) 7x + 4x = 33; 3 D) 7x – 4x = 33; 3

43) If 3 times a number is added to –10, the result is equal to 13 times the number. 43) _____
A) 3x – (–10) = 13x; 1 B) 3x + 10x = 13; 1
C) 13(3x – 10) = –10; –1 D) 3x + (–10) = 13x; –1

44) When $\frac{1}{4}$ of a number is added to 20, the result is 38. 44) _____

A) $\frac{1}{4} + x = 38$; 38
B) $\frac{1}{4}x - 20 = 38$; 232
C) $38 + \frac{1}{4}x = 20$; 72
D) $20 + \frac{1}{4}x = 38$; 72

45) Four times a number added to 7 times the number equals 44. 45) _____

A) $4(x + 7) = 44x$; –4
B) $7x + 4x = 44$; 4
C) $4x(7 + x) = 44$; –4
D) $7x - 4x = 44$; 4

46) If 4 times a number is added to –5, the result is equal to 9 times the number. 46) _____

A) $4x + (-5) = 9x$; –1
B) $9(4x - 5) = -5$; –1
C) $4x - (-5) = 9x$; 1
D) $4x + 5x = 9$; 1

47) When $\frac{1}{4}$ of a number is added to 12, the result is 36. 47) _____

A) $\frac{1}{4}x - 12 = 36$; 192
B) $\frac{1}{4} + x = 36$; 36
C) $12 + \frac{1}{4}x = 36$; 96
D) $36 + \frac{1}{4}x = 12$; 96

Solve the problem.

48) Find the length of a rectangular lot with a perimeter of 124 m if the length is 8 m more than the width. 48) _____

A) 62 m
B) 27 m
C) 70 m
D) 35 m

49) A square plywood platform has a perimeter which is 11 times the length of a side, decreased by 21. Find the length of a side. 49) _____

A) 10
B) 1
C) 3
D) 7

50) A rectangular Persian carpet has a perimeter of 204 inches. The length of the carpet is 30 in. more than the width. What are the dimensions of the carpet? 50) _____

A) Width: 87 in.; length: 117 in.
B) Width: 66 in.; length: 96 in.
C) Width: 72 in.; length: 102 in.
D) Width: 36 in.; length: 66 in.

51) Gloria collected 21 fantail and comet goldfish. There were 5 fewer fantails than comets. How many comets did Gloria have? 51) _____

A) 9 comets
B) 8 comets
C) 16 comets
D) 13 comets

52) A biologist collected 267 fern and moss samples. There were 83 fewer ferns than moss samples. How many fern samples did the biologist collect? 52) _____

A) 92 fern samples
B) 129 fern samples
C) 175 fern samples
D) 184 fern samples

53) In a recent school board election, the two candidates for president received 2398 votes. The loser received 1406 fewer votes than the winner. How many votes did the winner receive? 53) _____

A) 992 votes
B) 1654 votes
C) 1902 votes
D) 496 votes

54) Gloria collected 15 fantail and comet goldfish. There were 7 fewer fantails than comets. How many comets did Gloria have? 54) _____

A) 4 comets B) 11 comets C) 9 comets D) 8 comets

55) A biologist collected 372 fern and moss samples. There were 8 fewer ferns than moss samples. How many fern samples did the biologist collect? 55) _____

A) 364 fern samples B) 182 fern samples
C) 190 fern samples D) 99 fern samples

56) In a recent school board election, the two candidates for president received 2005 votes. The loser received 849 fewer votes than the winner. How many votes did the winner receive? 56) _____

A) 1427 votes B) 1156 votes C) 578 votes D) 1138 votes

Solve the percent problem.

57) If Gloria received a 8 percent raise and is now making $24,840 a year, what was her salary before the raise? 57) _____

A) $24,000 B) $23,000 C) $23,840 D) $22,840

58) An investor bought 100 shares of stock. The value of the shares went up 9% and then he sold them. How much did the investor pay for the 100 shares if he sold them for $1635? 58) _____

A) $1585 B) $1782 C) $1500 D) $1550

59) After receiving a discount of 15.5% on its bulk order of typewriter ribbons, John's Office Supply pays $4394. What was the price of the order before the discount? 59) _____

A) $3713 B) $3933 C) $5200 D) $5075

Solve the problem.

60) Gloria collected 25 fantail and comet goldfish. There were 13 fewer fantails than comets. How many comets did Gloria have? 60) _____

A) 19 comets B) 12 comets C) 6 comets D) 16 comets

61) A biologist collected 172 fern and moss samples. There were 8 fewer ferns than moss samples. How many fern samples did the biologist collect? 61) _____

A) 90 fern samples B) 82 fern samples
C) 164 fern samples D) 49 fern samples

62) In a recent school board election, the two candidates for president received 1815 votes. The loser received 1151 fewer votes than the winner. How many votes did the winner receive? 62) _____

A) 332 votes B) 1483 votes C) 664 votes D) 1317 votes

Solve the percent problem.

63) If Gloria received a 9 percent raise and is now making $21,800 a year, what was her salary before the raise? 63) _____

A) $20,000 B) $20,800 C) $19,800 D) $21,000

64) An investor bought 100 shares of stock. The value of the shares went up 2% and then he sold them. How much did the investor pay for the 100 shares if he sold them for $1479? 64) _____

A) $1450 B) $1429 C) $1500 D) $1509

65) After receiving a discount of 6.5% on its bulk order of typewriter ribbons, John's Office Supply pays $4675. What was the price of the order before the discount? 65) _____

A) $4371 B) $5000 C) $4979 D) $4605

Solve the mixture problem.

66) It is necessary to have a 40% antifreeze solution in the radiator of a certain car. The radiator now has 40 liters of 20% solution. How many liters of this should be drained and replaced with 100% antifreeze to get the desired strength? 66) _____

A) 10 liters B) 20 liters C) 16 liters D) 13.3 liters

67) How many liters of a 30% alcohol solution must be mixed with 60 liters of a 50% solution to get a 40% solution? 67) _____

A) 60 liters B) 120 liters C) 12 liters D) 6 liters

68) In a chemistry class, 6 liters of a 4% silver iodide solution must be mixed with a 10% solution to get a 6% solution. How many liters of the 10% solution are needed? 68) _____

A) 2 liters B) 3 liters C) 6 liters D) 4 liters

69) A merchant has coffee worth $4 a pound that she wishes to mix with 90 pounds of coffee worth $8 a pound to get a mixture worth $7 a pound. How many pounds of the $4 coffee should be used? 69) _____

A) 30 lb B) 60 lb C) 120 lb D) 15 lb

Solve the problem.

70) A convention manager finds that she has $1280, made up of twenties and fifties. She has a total of 46 bills. How many fifty–dollar bills does the manager have? 70) _____

A) 8 B) 34 C) 46 D) 12

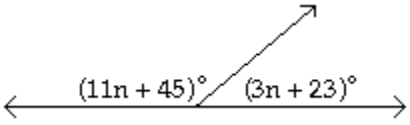
71) A cashier has a total of 122 bills, made up of fives and tens. The total value of the money is $780. How many ten–dollar bills does the cashier have? 71) _____

A) 17 B) 34 C) 51 D) 88

72) A cashier has a total of 132 bills, made up of fives and tens. The total value of the money is $850. How many ten–dollar bills does the cashier have? 72) _____

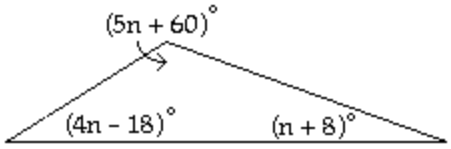
A) 19 B) 94 C) 57 D) 38

73) Find the measures of the supplementary angles. 73) _____



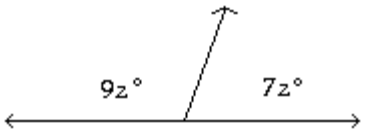
A) 47°, 43° B) 137°, 43° C) 133°, 47° D) 43°, 47°

74) Find the measure of each angle in the triangle. 74) _____



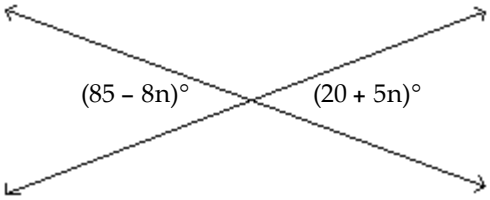
A) 28°, 128°, 24° B) 38°, 123°, 19° C) 34°, 125°, 21° D) 32°, 37°, 21°

75) Find the measures of the supplementary angles. 75) _____



A) 96.25°, 83.75° B) 98.25°, 81.75° C) 101.25°, 78.75° D) 90°, 70°

76) Find the measures of the vertical angles. 76) _____



A) 5°, 5° B) 45°, 45° C) 20°, 20° D) 85°, 85°

Solve the problem involving consecutive integers.

77) The sum of three consecutive odd integers is 261. Find the integers. 77) _____

A) 87, 89, 91 B) 80, 81, 82 C) 85, 87, 89 D) 89, 91, 93