

Exam

Name _____

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

Solve the equation.

1) $7(x + 5) = (7x + 35)$

A) \emptyset

B) $\{0\}$

C) $\{70\}$

D) $\{\text{All real numbers}\}$

Answer: D

1) _____

Solve the problem.

2) Ms. Lembke was not able to sell her house for \$175,000, so she lowered the price to \$160,000. To the nearest tenth, what was the percent decrease?

A) 91.4%

B) 8.6%

C) 9.4%

D) 1066.7%

Answer: B

2) _____

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

3) $2(5g + 31) - 10g - 62 = 0$

A) Contradiction; \emptyset

B) Conditional; $\{0\}$

C) Identity; $\{\text{all real numbers}\}$

D) Conditional; $\{5\}$

Answer: C

3) _____

Solve the percent problem.

4) In a local election, 37,700 people voted. This was a decrease of 11% over the last election. How many people voted in the last election?

A) 33,553 people

B) 42,360 people

C) 41,847 people

D) 33,964 people

Answer: B

4) _____

Translate as an inequality. Use x to represent the number.

5) 9 is more than a number.

A) $9 < x$

B) $x + 9$

C) $9 > x$

D) $9 \geq x$

Answer: C

5) _____

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

6) $2(25t + 20) = 10(3t + 10)$

A) Identity; $\{\text{all real numbers}\}$

B) Conditional; $\{-7\}$

C) Conditional; $\{3\}$

D) Contradiction; \emptyset

Answer: C

6) _____

Solve the equation.

7) $52s + 30 = 12s$

A) $\left\{\frac{15}{32}\right\}$

B) $\left\{\frac{4}{3}\right\}$

C) $\left\{-\frac{3}{4}\right\}$

D) $\left\{\frac{3}{4}\right\}$

Answer: C

7) _____

Solve the formula for the specified variable.

8) $P = s_1 + s_2 + s_3$ for s_3

A) $s_3 = P - s_1 - s_2$

B) $s_3 = s_1 + s_2 - P$

C) $s_3 = P + s_1 + s_2$

D) $s_3 = s_1 + P - s_2$

8) _____

Answer: A

Solve the problem.

9) Candy and Delvis are riding bicycles in the same direction. Candy is traveling at a speed of 9 miles per hour, and Delvis is traveling at a speed of 14 miles per hour. In 4 hours what is the distance between them (assuming that they began at the same point and time)?

A) 20 miles

B) 17 miles

C) 21 miles

D) 29 miles

9) _____

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

10) When solving a "word problem" we set up an equation in x . Give an example where the solution of the equation is not the answer to the problem.

10) _____

Answer: Answers will vary. An example would be: One number is twice another and their sum is 60. Find the larger number. To solve this problem, the equation would be $x + 2x = 60$. $x = 20$. The problem asks for the larger number, which is $2x = 2(20) = 40$.

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

Solve the problem.

11) The price of a shirt was reduced from \$33.90 to \$20.34. To the nearest tenth, what was the percent discount?

11) _____

A) 40%

B) 4%

C) 41%

D) 42%

Answer: A

Translate as an inequality. Use x to represent the number.

12) -4 is less than a number.

12) _____

A) $-4 > x$

B) $-4 < x$

C) $-4 \leq x$

D) $-4 - x$

Answer: B

Solve the problem.

13) Jay drove 390 kilometers at the average rate of 78 kilometers per hour. How long did the trip take?

13) _____

A) 4 hr

B) 5 hr

C) $\frac{1}{5}$ hr

D) 6 hr

Answer: B

14) A circle has a circumference of 36π meters. What is the radius of the circle?

14) _____

A) 18 m

B) 9 m

C) 36 m

D) 6 m

Answer: A

15) Jay drove 360 kilometers at the average rate of 72 kilometers per hour. How long did the trip take?

15) _____

A) 6 hours

B) 5 hours

C) 3 hours

D) 4 hours

Answer: B

Solve the percent problem.

- 16) Midtown Antiques collects 3% sales tax on all sales. If total sales including tax are \$1081.30, find the portion that is the tax. 16) _____
A) \$1049.81 B) \$32.44 C) \$21.49 D) \$31.49

Answer: D

Solve the problem.

- 17) From a point on a river, two boats are driven in opposite directions, one at 5 miles per hour and the other at 6 miles per hour. In how many hours will they be 44 miles apart? 17) _____
A) 4 hours B) 6 hours C) 1 hour D) 5 hours

Answer: A

Provide an appropriate response.

- 18) A bit is one-eighth of a dollar. Write a bit as a decimal. 18) _____
A) 0.125 B) 0.00125 C) 0.18 D) 12.5

Answer: A

Solve the formula for the specified variable.

- 19) $y = mx + b$ for x 19) _____
A) $x = \frac{y - b}{m}$ B) $x = \frac{y}{m} - b$ C) $x = \frac{m}{y - b}$ D) $x = y - mb$

Answer: A

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

- 20) When $\frac{1}{4}$ of a number is added to 20, the result is 27. 20) _____
A) $\frac{1}{4}x + 27; 32$ B) $\frac{1}{4} + x = 27; 27$
C) $\frac{1}{4}x + 20 = 27; 28$ D) $\frac{1}{4}x - 20 = 27; 188$

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

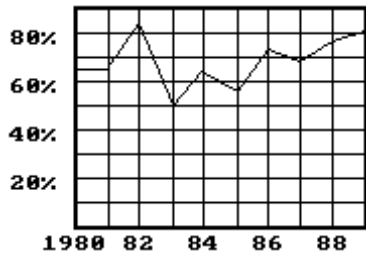
- 21) Two angles are complementary. One of the angles is r . How do you express the other angle? 21) _____

Answer: $90 - r$

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

Solve the problem.

- 22) The graph shows the percent of students at a local high school who were enrolled in a foreign language class each school year during the 1980s. 22) _____



Using an estimate of the percentage to the nearest percent, what is the best estimate for the number of students taking a language in 1981 if a total of 3050 students were enrolled in the school?

- A) 2983 students B) 1983 students C) 39 students D) 1068 students

Answer: B

Provide an appropriate response.

- 23) $2x - 5 = 5 + 7x - 3$ 23) _____

Is this a linear equation?

- A) No B) Yes

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 24) One student solved a problem involving money by using a denomination based on cents and not on dollars. For example, she multiplied the number of nickels by 5 cents and not by \$0.05. Was she wrong? 24) _____

Answer: Answers will vary. The student was not wrong. For example, if the problem asked to find the total amount, she may have intended to provide her final result in cents and not in dollars. Furthermore, if she had wanted to provide a final result in dollars, all she would need to do is divide the final result in cents by 100. As long as she was consistent in her use of denominations based on cents, her results would be valid.

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

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

- 25) 2 times a number 25) _____

- A) $2x$ B) $2 + x$ C) $\frac{2}{x}$ D) $2 - x$

Answer: A

Solve the mixture problem.

- 26) A merchant has coffee worth \$3 a pound that she wishes to mix with 40 pounds of coffee worth \$9 a pound to get a mixture that can be sold for \$4 a pound. How many pounds of the \$3 coffee should be used? 26) _____

- A) 120 lb B) 240 lb C) 100 lb D) 200 lb

Answer: D

Solve the problem.

- 27) A book with a list price of \$69.49 is on sale for a price of \$42.49. To the nearest tenth, what is the percent discount? 27) _____
A) 3.9% B) 38.9% C) 63.5% D) 6.4%

Answer: B

Provide an appropriate response.

- 28) $5x^2 - 7 = 3x$ 28) _____
Is this a linear equation?
A) Yes B) No

Answer: B

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

- 29) When 15% of a number is subtracted from 50, the result is 7 less than the number. Round to the nearest whole number, if necessary. 29) _____
A) $0.15x - 50 = x - 7; -37$ B) $50 - 15x = x - 7; 4$
C) $50 - 0.15x = x - 7; 50$ D) $50 - 0.15x = 7 - x; -37$

Answer: C

Solve the equation.

- 30) $\frac{f}{6} - 4 = 1$ 30) _____
A) $\{-18\}$ B) $\{-30\}$ C) $\{18\}$ D) $\{30\}$

Answer: D

Solve the problem.

- 31) There were 42,000 people at a ball game in Los Angeles. The day's receipts were \$288,000. How many people paid \$12.00 for reserved seats and how many paid \$4.00 for general admission? 31) _____
A) 27,000 paid \$12 and 15,000 paid \$4 B) 30,000 paid \$12 and 12,000 paid \$4
C) 15,000 paid \$12 and 27,000 paid \$4 D) 12,000 paid \$12 and 30,000 paid \$4

Answer: C

- 32) Last year Bill paid \$664.49 in taxes. This year he paid \$943.10. To the nearest tenth, what was the percent increase in the amount of taxes he paid? 32) _____
A) 4.2% B) 41.9% C) 3.0% D) 29.5%

Answer: B

- 33) A triangle has a height of 18 m and base of 19 m. What is the area? 33) _____
A) 342 m^2 B) 684 m^2 C) 18.5 m^2 D) 171 m^2

Answer: D

- 34) A bank teller has some five-dollar bills and some twenty-dollar bills. The teller has 10 more of the twenties. The total value of the money is \$775. Find the number of five-dollar bills that the teller has. 34) _____
A) 33 B) 13 C) 23 D) 43

Answer: C

Solve the equation.

35) $\frac{b}{10} - 10 = -4$

35) _____

A) {-62}

B) {60}

C) {-60}

D) {62}

Answer: B

Decide whether an expression or an equation is given.

36) $5(4t + 4) + 2(3t - 2) = 8$

36) _____

A) expression

B) equation

Answer: B

Solve the equation for y.

37) $6x - 4y = 9$

37) _____

A) $y = \frac{-9 - 6x}{-4}$, or $y = \frac{6x + 9}{4}$

B) $y = \frac{-9 + 6x}{-4}$, or $y = \frac{-6x + 9}{4}$

C) $y = \frac{9 - 6x}{-4}$, or $y = \frac{6x - 9}{4}$

D) $y = \frac{9 + 6x}{-4}$, or $y = \frac{6x + 9}{4}$

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Answer the question or provide an explanation.

38) Suppose the formula $s = \frac{1}{2}gt^2 + v_0t$ is solved for t with the following result: $t = \frac{2s}{gt + 2v_0}$. 38) _____

Explain why this is not correct.

Answer: The variable t cannot appear on both sides of the equation.

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

Solve the equation.

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

39) _____

A) {-28}

B) {-32}

C) {32}

D) {28}

Answer: B

Solve the problem.

40) A woman has \$1.70 in dimes and nickels. She has 5 more dimes than nickels. How many nickels does she have? 40) _____

A) 3

B) 13

C) 18

D) 8

Answer: D

Solve the problem involving consecutive integers.

41) The sum of three consecutive odd integers is 213. Find the integers. 41) _____

A) 73, 75, 77

B) 64, 65, 66

C) 69, 71, 73

D) 71, 73, 75

Answer: C

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

- 42) $16m + 20 = 4(2m - 11)$ 42) _____
A) Conditional; {3} B) Conditional; {-8}
C) Identity; {all real numbers} D) Contradiction; \emptyset

Answer: B

Solve the problem.

- 43) During a laboratory experiment, a student found that the melting point of his unknown substance was 333°F . Find the corresponding Celsius temperature. Round to the nearest tenth, if necessary. 43) _____
A) 167.2°C B) 631.4°C C) 541.8°C D) 181.4°C

Answer: A

- 44) A chemical solution contains 7% salt. How much salt is in 4 ml of solution? 44) _____
A) 5.714 ml B) 2.8 ml C) 57.143 ml D) 0.28 ml

Answer: D

Solve the problem involving consecutive integers.

- 45) Two pages that face each other in a book have 393 as the sum of their page numbers. What is the number of the page that comes first? 45) _____
A) 195 B) 194 C) 197 D) 196

Answer: D

Solve the problem.

- 46) Jill is 22 kilometers away from Joe. Both begin to walk toward each other at the same time. Jill walks at 3 kilometers per hour. They meet in 4 hours. How fast is Joe walking? 46) _____
A) 2.5 kilometers per hour B) 4.5 kilometers per hour
C) 3 kilometers per hour D) 3.5 kilometers per hour

Answer: A

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

- 47) $4k + 31 = 2(2k + 12)$ 47) _____
A) Identity; {all real numbers} B) Contradiction; \emptyset
C) Conditional; {2} D) Conditional; {-2}

Answer: B

Solve the mixture problem.

- 48) How many liters of a 30% alcohol solution must be mixed with 90 liters of a 60% solution to get a 50% solution? 48) _____
A) 13.5 liters B) 4.5 liters C) 45 liters D) 135 liters

Answer: C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 49) If you are given the measure of one angle of a triangle, would you be able to provide the measures of the two other angles? 49) _____

Answer: No. Not enough information is given.

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

Solve the formula for the specified variable.

50) $I = \frac{nE}{nr + R}$ for n 50) _____

- A) $n = IR(Ir - E)$ B) $n = \frac{IR}{Ir + E}$ C) $n = \frac{-IR}{Ir - E}$ D) $n = \frac{-R}{Ir - E}$

Answer: C

Solve the problem.

51) Find the surface area of a cylinder with a radius of 2 cm and a height of 10 cm. Use 3.14 for π . 51) _____

- A) 125.6 cm^2 B) 376.8 cm^2 C) 138.16 cm^2 D) 150.72 cm^2

Answer: D

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

52) Twice some number 52) _____

- A) $2x$ B) $\frac{2}{x}$ C) $2 - x$ D) $2 + x$

Answer: A

Solve the equation.

53) $\frac{y}{13} + 8 = 12$ 53) _____

- A) {52} B) {-54} C) {-52} D) {54}

Answer: A

Solve the percent problem.

54) On Monday, an investor bought 100 shares of stock. On Tuesday, the value of the shares went up 2%. How much did the investor pay for the 100 shares if he sold them Wednesday morning for \$1377? 54) _____

- A) \$1350 B) \$1405 C) \$1400 D) \$1327

Answer: A

Solve the mixture problem.

55) 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? 55) _____

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

Answer: A

Solve the problem.

56) The speed of a stream is 6 mph. If a boat travels 84 miles downstream in the same time that it takes to travel 42 miles upstream, what is the speed of the boat in still water? 56) _____

- A) 21 mph B) 18 mph C) 20 mph D) 12 mph

Answer: B

Decide whether an expression or an equation is given.

57) $7x - (2x - 5) - (-7x + 1)$ 57) _____

- A) equation B) expression

Answer: B

Solve.

58) $-0.03x + 0.11(x + 3200) = 384$

- A) {40} B) {400} C) {40,000} D) {4000}

58) _____

Answer: B

Solve the problem.

59) The two largest oil spills together released 328 million gallons of oil into the oceans. The smaller of the two released 40 million gallons less than the larger of the two. How many million gallons did the larger one release?

59) _____

- A) 144 million gal B) 288 million gal C) 184 million gal D) 112 million gal

Answer: C

Solve the equation.

60) $16t - 15 = 4t - 3$

- A) $\left\{-\frac{8}{9}\right\}$ B) $\{-1\}$ C) $\{1\}$ D) $\left\{-\frac{20}{11}\right\}$

60) _____

Answer: C

Solve the problem.

61) During one year, the Larson's real estate bill included \$426 for local schools. Of this amount, \$165 went to the high school district. What percent did the Larsons pay to the high school district? (Round answer to two decimal places.)

61) _____

- A) 61.27% B) 16.50% C) 38.73% D) 38.50%

Answer: C

Solve the percent problem.

62) If Gloria received a 8 percent raise and is now making \$22,680 a year, what was her salary before the raise?

62) _____

- A) \$22,000 B) \$20,680 C) \$21,000 D) \$21,680

Answer: C

Solve the problem.

63) In a recent school board election, the two candidates for president received 1867 votes. The loser received 699 fewer votes than the winner. How many votes did the winner receive?

63) _____

- A) 1168 votes B) 1283 votes C) 991 votes D) 584 votes

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

64) Suppose you were to solve a problem involving uniform motion, and the problem gave the rate in miles per hour and the time in minutes. Would you be able to determine the distance traveled? If so, how would you go about it?

64) _____

Answer: Yes. You would need to convert the rate to miles per minute or the time to hours before proceeding to solve for the distance in miles.

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

Solve the investment problem.

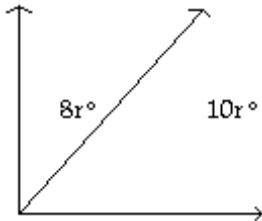
- 65) Mardi received an inheritance of \$60,000. She invested part at 10% and deposited the remainder in tax-free bonds at 11%. Her total annual income from the investments was \$6300. Find the amount invested at 10%. 65) _____

A) \$29,000 B) \$15,000 C) \$30,000 D) \$53,700

Answer: C

Solve the problem.

- 66) Find the measures of the complementary angles. 66) _____



A) 80° and 100° B) 20° and 25° C) 45° and 45° D) 40° and 50°

Answer: D

Solve the equation.

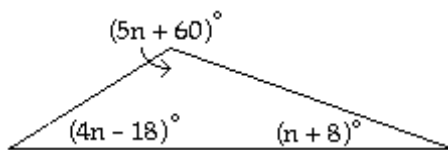
- 67) $27x - 10 = 14$ 67) _____

A) $\left\{-\frac{8}{9}\right\}$ B) $\left\{\frac{23}{27}\right\}$ C) $\left\{\frac{8}{9}\right\}$ D) $\left\{\frac{4}{27}\right\}$

Answer: C

Solve the problem.

- 68) Find the measure of each angle in the triangle. 68) _____



A) 45° , 24° and 21° B) 56° , 125° and 21°
C) 65° , 65° and 13° D) 34° , 125° and 21°

Answer: D

Solve the equation.

- 69) $-[7x + (7x + 7)] = 4 - (7x + 9)$ 69) _____

A) $\left\{-\frac{2}{7}\right\}$ B) $\left\{\frac{6}{7}\right\}$ C) $\left\{-\frac{6}{7}\right\}$ D) $\left\{\frac{2}{7}\right\}$

Answer: A

Decide whether an expression or an equation is given.

- 70) $3t - 3(5t - 3) = -5$ 70) _____

A) equation B) expression

Answer: A

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

71) At a garage sale, the most expensive item was marked \$22.00 more than the cheapest item. The sum of the two items was \$25.70. Find the cost of the least expensive item. 71) _____

- A) $x(x + 22.00) = 25.70$; \$1.85 B) $x + 22.00 = 25.70$; \$3.70
C) $x + (x + 22.00) = 25.70$; \$1.85 D) $25.70 - x = 22.00$; \$3.70

Answer: C

Solve the problem involving consecutive integers.

72) The sum of two consecutive integers is -219. Find the larger integer. 72) _____

- A) -111 B) -108 C) -110 D) -109

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

73) Carefully explain the difference between an algebraic expression and an algebraic equation. 73) _____

Answer: An algebraic expression is a collection of variables, constants, and operators that represents some value. An algebraic equation is a statement that asserts that two expressions are equivalent. Expressions translate as phrases. Equations include the = symbol and translate as sentences.

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

Solve the problem.

74) A cashier has a total of 131 bills, made up of fives and tens. The total value of the money is \$935. How many ten-dollar bills does the cashier have? 74) _____

- A) 75 B) 84 C) 28 D) 56

Answer: D

Solve.

75) $0.07y + 0.08(4000 - y) = 0.49y$ 75) _____

- A) {640} B) {1600} C) {1920} D) {160}

Answer: A

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

76) 41 added to a number 76) _____

- A) $41 + x$ B) $41 - x$ C) $41x$ D) 41

Answer: A

Solve the problem.

77) Find the simple interest if \$4300 is borrowed at 9% for 9 months (0.75 yr). 77) _____

- A) \$516.00 B) \$29,025.00 C) \$358.33 D) \$290.25

Answer: D

Solve the problem involving consecutive integers.

78) The sum of three consecutive odd integers is 159. Find the integers. 78) _____

- A) 55, 57, 59 B) 53, 55, 57 C) 51, 53, 55 D) 46, 47, 48

Answer: C

Translate as an inequality. Use x to represent the number.

79) 12 is less than a number.

A) $12 \leq x$

B) $12 - x$

C) $12 < x$

D) $12 > x$

79) _____

Answer: C

Solve the formula for the specified variable.

80) $d = rt$ for r

A) $r = \frac{t}{d}$

B) $r = \frac{d}{t}$

C) $r = d - t$

D) $r = dt$

80) _____

Answer: B

Provide an appropriate response.

81) $-\frac{3}{x} = 83$

81) _____

Is this a linear equation?

A) No

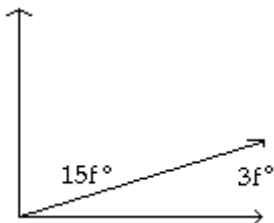
B) Yes

Answer: A

Solve the problem.

82) Find the measures of the complementary angles.

82) _____



A) 150° and 30°

B) 75° and 15°

C) 37.5° and 7.5°

D) 70° and 20°

Answer: B

83) A square has a side of 1.7 in. What is the area?

A) 2.89 in.^2

B) 4 in.^2

C) 11.56 in.^2

D) 3.4 in.^2

83) _____

Answer: A

84) The price of a jacket was reduced from \$135 to \$74.25. What was the percent discount?

A) 47%

B) 4.5%

C) 45%

D) 46%

84) _____

Answer: C

85) An equilateral triangle has perimeter 42 inches. What would be the perimeter of a square whose sides each measure the same length as the side of the triangle?

85) _____

A) 196 inches

B) 14 inches

C) 28 inches

D) 56 inches

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

86) How would you express the product of two numbers, r and s ?

86) _____

Answer: rs

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

Decide whether an expression or an equation is given.

87) $\frac{t}{12} - \frac{t+4}{14} - 10$

87) _____

A) equation

B) expression

Answer: B

Solve the problem.

88) Find the simple interest if \$1700 is invested at 9% for 5 years.

88) _____

A) \$765.00

B) \$153.00

C) \$944.44

D) \$30.60

Answer: A

Solve the mixture problem.

89) 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?

89) _____

A) 2 liters

B) 3 liters

C) 6 liters

D) 4 liters

Answer: B

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

90) Some number increased by 62

90) _____

A) 62

B) $x - 62$

C) $62x$

D) $x + 62$

Answer: D

Solve the problem.

91) Janet drove 304 kilometers and the trip took 4 hours. How fast was Janet traveling?

91) _____

A) 86 kilometers per hour

B) 76 kilometers per hour

C) 96 kilometers per hour

D) 66 kilometers per hour

Answer: B

Solve the equation.

92) $(y - 5) - (y + 2) = 4y$

92) _____

A) $\left\{-\frac{1}{2}\right\}$

B) $\left\{-\frac{7}{4}\right\}$

C) $\left\{-\frac{7}{3}\right\}$

D) $\left\{-\frac{7}{5}\right\}$

Answer: B

Solve the problem.

93) By switching service providers, a family's telephone bill decreased from \$50 a month to \$43. What was the percent decrease in their phone bill?

93) _____

A) 7%

B) 16.3%

C) 14%

D) 15%

Answer: C

Solve the percent problem.

94) After spending \$3250 for tables and \$3350 for chairs, a convention center manager finds that 20% of his original budget remains. Find the amount that remains. Round to the nearest dollar.

94) _____

A) \$8250

B) \$1320

C) \$1650

D) \$4188

Answer: C

Solve the formula for the specified variable.

95) $A = P(1 + nr)$ for r

A) $r = \frac{A - P}{Pn}$

B) $r = \frac{A}{n}$

C) $r = \frac{P - A}{Pn}$

D) $r = \frac{Pn}{A - P}$

95) _____

Answer: A

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

96) The product of 44 and a number

A) $44 - x$

B) $\frac{44}{x}$

C) $44x$

D) $44 + x$

96) _____

Answer: C

Translate as an inequality. Use x to represent the number.

97) 21 is greater than a number.

A) $21 < x$

B) $21 \leq x$

C) $x + 21$

D) $21 > x$

97) _____

Answer: D

Solve the problem.

98) Find the total amount in an account if \$700 is invested at 9.5% simple interest for 1.5 years.

A) \$799.75

B) \$766.50

C) \$810.53

D) \$99.75

98) _____

Answer: A

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

99) A number minus 96

A) $96x$

B) $x - 96$

C) $x + 96$

D) 96

99) _____

Answer: B

Solve the equation for y .

100) $-8x + 7y = 9$

A) $y = \frac{9 + 8x}{7}$

B) $y = 56x + 63$

C) $y = \frac{9 - 8x}{7}$

D) $y = \frac{-9 - 8x}{7}$

100) _____

Answer: A

Provide an appropriate response.

101) True or False? A straight angle can be made up of two right angles.

A) False

B) True

101) _____

Answer: B

Answer the question or provide an explanation.

102) Which of the following is not a correct answer when the formula $V = \frac{1}{3}\pi r^2 h$ is solved for h ?

$\frac{1}{3}\left(\frac{V}{\pi r^2}\right)$ $\frac{3V}{\pi r^2}$ $\frac{V}{\frac{1}{3}\pi r^2}$ $3\left(\frac{V}{\pi r^2}\right)$

A) $3\left(\frac{V}{\pi r^2}\right)$

B) $\frac{1}{3}\left(\frac{V}{\pi r^2}\right)$

C) $\frac{V}{\frac{1}{3}\pi r^2}$

D) $\frac{3V}{\pi r^2}$

102) _____

Answer: B

Provide an appropriate response.

103) Which two of the following equations do not correctly state the relationship between distance, rate and time? 103) _____

(a) $\frac{d}{t} = r$ (b) $dr = t$

(c) $\frac{r}{t} = d$ (d) $\frac{d}{r} = t$

- A) (b) and (c) B) (b) and (d) C) (a) and (d) D) (a) and (c)

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

104) Find all values of s that make this statement true: $8(4s - 2) = 32s - 16$. 104) _____

Answer: Since the equation is an identity, the solution set is {all real numbers}.

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

105) Find the rate based on the information provided. Use a calculator and round your answer to the nearest hundredth. 105) _____

James ran the 200-meter dash in 21.9 seconds.

- A) 0.11 m per sec B) 2.28 m per sec C) 18.26 m per sec D) 9.13 m per sec

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

106) One positive number is twice another. If the larger number is m , how do you express the other number in terms of m ? 106) _____

Answer: $\frac{m}{2}$ or $\frac{1}{2}m$

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

Solve the problem.

107) There were 610 people at a play. The admission price was \$3.00 for adults and \$1.00 for children. The admission receipts were \$1290. How many adults and children attended? 107) _____

- A) 135 adults and 475 children B) 322 adults and 288 children
C) 340 adults and 270 children D) 270 adults and 340 children

Answer: C

108) Gloria collected 36 fantail and comet goldfish. There were 4 fewer fantails than comets. How many comets did Gloria have? 108) _____

- A) 16 comets B) 20 comets C) 12 comets D) 32 comets

Answer: B

109) The finance charge on a loan taken out by Ximena is \$505. If there were 18 equal monthly installments needed to repay the loan, and the loan is paid in full with 12 months remaining, find the total finance charge paid. (Round answer to the nearest cent.) 109) _____

- A) \$230.35 B) \$274.65 C) \$505.00 D) \$62.02

Answer: B

Solve the mixture problem.

- 110) A chemist makes a mixture of concentrated hydrochloric acid and distilled water so that the ratio of acid to water is 6 to 4. If he starts with 12 liters of acid, how much water is mixed with the acid? 110) _____
A) 23 liters B) 8 liters C) 15 liters D) 36 liters

Answer: B

Answer the question or provide an explanation.

- 111) In order to purchase fringe for a tablecloth, would you need to use perimeter or area to decide how much to buy? 111) _____
A) Area B) Perimeter

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 112) How are ticket problems and coin problems similar? 112) _____
Answer: Answers will vary, but the answer should state that equations are written by multiplying the number of coins or tickets by their value, or the amount of an investment by its percent of income.

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

Solve the problem.

- 113) The area of a trapezoid is 76 square feet. If the bases are 5 and 14 feet, find the altitude of the trapezoid. 113) _____
A) 1.5 ft B) 8 ft C) 4 ft D) 16 ft

Answer: B

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

- 114) When 5 times a number is subtracted from 7 times the number, the result is 14. 114) _____
A) $5(x - 7) = 14x$; 0.3 B) $5x + 7x = 14$; 2
C) $7x - 5x = 14$; 7 D) $5x(7 - x) = 14$; -7

Answer: C

Solve the equation for y .

- 115) $-3x - 3y = 5$ 115) _____
A) $y = \frac{-5 - 3x}{-3}$, or $y = \frac{3x + 5}{3}$ B) $y = \frac{5 + 3x}{-3}$, or $y = \frac{-3x - 5}{3}$
C) $y = \frac{5 - 3x}{-3}$, or $y = \frac{3x - 5}{3}$ D) $y = \frac{-5 + 3x}{-3}$, or $y = \frac{5 - 3x}{3}$

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 116) The solution of the equation $4(5s - 7) = 20s - 28$ is given as 0. Is this correct? Explain. 116) _____
Answer: No. The equation is an identity with solution set {all real numbers}.

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

Solve the investment problem.

- 117) Walt made an extra \$10,000 last year from a part-time job. He invested part of the money at 8% and the rest at 6%. He made a total of \$720 in interest. How much was invested at 6%? 117) _____
A) \$8000 B) \$4000 C) \$5000 D) \$6000

Answer: B

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Answer the question or provide an explanation.

- 118) Suppose the formula $A = 2\pi rh + 2\pi r^2$ is solved for r with the following result: $r = \frac{A}{2\pi h + 2\pi r}$. Explain why this is not correct. 118) _____

Answer: The variable r cannot appear on both sides of the final result.

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

Decide whether an expression or an equation is given.

- 119) $(3y - 6) - (-8y + 1) = 7$ 119) _____
A) equation B) expression

Answer: A

- 120) $2(3y - 2) - 4(4y - 2)$ 120) _____
A) expression B) equation

Answer: A

Solve the problem.

- 121) Last year, Maria earned \$356 per week. This year, her salary increased to \$393 per week. To the nearest tenth, what was the percent increase? 121) _____
A) 89.6% B) 9.4% C) 10.4% D) 90.6%

Answer: C

- 122) The formula $A = \frac{24f}{b(p+1)}$ gives the approximate annual interest rate for a consumer loan paid off 122) _____

with monthly payments, where f is the finance charge on the loan, p is the number of payments, and b is the original amount of the loan. Find the approximate annual interest rate for an automobile loan to be repaid in 24 monthly installments if the finance charge on the loan is \$490 and the original loan balance is \$4730. (Round answer to two decimal places, if necessary.)

- A) 9.09% B) 9.95% C) 10.36% D) 10.81%

Answer: B

Solve the equation.

- 123) $12(5c - 3) = 5c - 3$ 123) _____
A) $\left\{-\frac{3}{5}\right\}$ B) $\left\{\frac{3}{5}\right\}$ C) $\left\{\frac{3}{65}\right\}$ D) $\left\{\frac{39}{5}\right\}$

Answer: B

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

124) 174 divided by some number

- A) $174x$ B) $174 - x$ C) $174 + x$ D) $\frac{174}{x}$

124) _____

Answer: D

Solve the problem.

125) A convention manager finds that she has \$1340, made up of twenties and fifties. She has a total of 49 bills. How many fifty-dollar bills does the manager have?

- A) 12 B) 37 C) 8 D) 49

125) _____

Answer: A

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

126) $-15s - 137 + 3(5s + 48) = 0$

- A) Identity; {all real numbers} B) Conditional; {5}
C) Contradiction; \emptyset D) Conditional; {1}

126) _____

Answer: C

Solve the equation for y .

127) $7x + 9y = 7$

- A) $y = \frac{7 - 7x}{9}$ B) $y = -63x + 63$ C) $y = \frac{-7 - 7x}{9}$ D) $y = \frac{7 + 7x}{9}$

127) _____

Answer: A

Solve the problem.

128) What amount of money is found in a coin purse containing 16 dimes and 7 quarters?

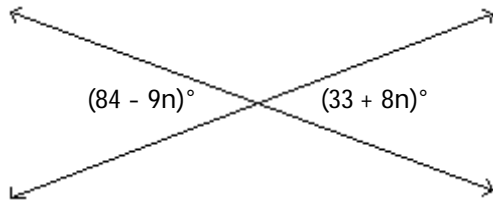
- A) \$3.35 B) \$0.23 C) \$335.00 D) \$4.70

128) _____

Answer: A

129) Find the measures of the vertical angles.

129) _____



- A) 84° and 84° B) 57° and 57° C) 3° and 3° D) 33° and 33°

Answer: B

Solve the equation.

130) $8x + 6(2x - 2) = 13 - 5x$

- A) $\{-1\}$ B) $\{1\}$ C) $\left\{\frac{1}{25}\right\}$ D) $\left\{\frac{1}{15}\right\}$

130) _____

Answer: B

Solve the problem.

- 131) Bert is 22 kilometers away from Brenda. Both begin to walk toward each other at the same time. Bert walks at 3.5 kilometers per hour. They meet in 4 hours. How fast is Brenda walking? 131) _____
 A) 3 kilometers per hour B) 3.5 kilometers per hour
 C) 4 kilometers per hour D) 2 kilometers per hour

Answer: D

- 132) Tom Quig traveled 280 miles east of St. Louis. For most of the trip he averaged 60 mph, but for one period of time he was slowed to 10 mph due to a major accident. If the total time of travel was 8 hours, how many miles did he drive at the reduced speed? 132) _____
 A) 50 miles B) 35 miles C) 40 miles D) 60 miles

Answer: C

- 133) The finance charge on a loan taken out by Ximena is \$713. If there were 48 equal monthly installments needed to repay the loan, and the loan is paid in full with 9 months remaining, find the amount of unearned interest. (Round answer to the nearest cent.) 133) _____
 A) \$22.76 B) \$472.91 C) \$468.38 D) \$27.28

Answer: D

Solve the percent problem.

- 134) Stevie bought a stereo for \$235 and put it on sale at his store at a 65% markup rate. What was the retail price of the stereo? 134) _____
 A) \$287.75 B) \$387.75 C) \$470.00 D) \$335.00

Answer: B

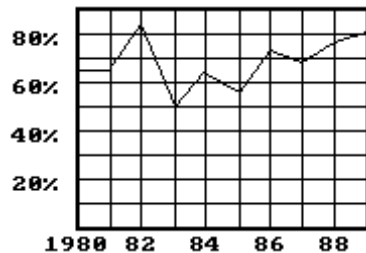
Solve the formula for the specified variable.

- 135) $E = hv\left(n + \frac{1}{2}\right)$ for n 135) _____
 A) $n = \frac{E - 1}{2hv}$ B) $n = hv\left(E + \frac{1}{2}\right)$ C) $n = \frac{E - \frac{1}{2}}{hv}$ D) $n = \frac{E}{hv} - \frac{1}{2}$

Answer: D

Solve the problem.

- 136) The graph shows the percent of students at a local high school who were enrolled in a foreign language class each school year during the 1980s. 136) _____



Using an estimate of the percentage to the nearest percent, what is the best estimate for the number of students not taking a language in 1982 if a total of 2590 students were enrolled in the school?

- A) 440 students B) 4662 students C) 390 students D) 2150 students

Answer: A

Translate as an inequality. Use x to represent the number.

137) A number is greater than -17 .

A) $x < -17$

B) $-17 + x$

C) $-17 > x$

D) $x > -17$

137) _____

Answer: D

Solve the problem.

138) A plane flies 460 miles with the wind and 340 miles against the wind in the same length of time. If the speed of the wind is 30 mph, what is the speed of the plane in still air?

A) 225 mph

B) 200 mph

C) 205 mph

D) 190 mph

138) _____

Answer: B

139) A mixture of chlorine and water contains a total of 48 gallons of liquid. There are 20 gallons of pure chlorine in the mixture. (i) What percent of the mixture is water? (ii) What percent of the mixture is chlorine? Round to the nearest percent, if necessary.

A) (i) 20% water; (ii) 80% chlorine

B) (i) 58% water; (ii) 42% chlorine

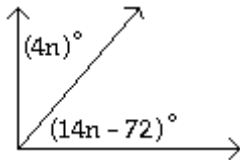
C) (i) 42% water; (ii) 58% chlorine

D) (i) 33% water; (ii) 67% chlorine

139) _____

Answer: B

140) Find the measures of the complementary angles.



A) 126° and 54°

B) 36° and 108°

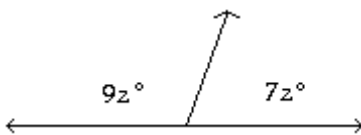
C) 36° and 54°

D) 36° and 144°

140) _____

Answer: C

141) Find the measures of the supplementary angles.



A) 101.25° and 78.75°

B) 202.5° and 157.5°

C) 50.63° and 39.38°

D) 96.25° and 83.75°

141) _____

Answer: A

142) Find the total amount that must be repaid if \$2100 is borrowed at 9% simple interest for 4 years.

A) \$2289.00

B) \$3033.33

C) \$756.00

D) \$2856.00

142) _____

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

143) How can you tell when an equation has a solution set of all real numbers?

143) _____

Answer: Answers will vary.

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

Answer the question or provide an explanation.

- 144) In order to purchase carpet for a room, would you need to use perimeter or area to decide how much to buy? 144) _____
A) Area B) Perimeter

Answer: A

Solve the problem.

- 145) Chuck and Dana agree to meet in Chicago for the weekend. Chuck travels 285 miles in the same time that Dana travels 270 miles. If Chuck's rate of travel is 3 mph more than Dana's, and they travel the same length of time, at what speed does Chuck travel? 145) _____
A) 59 mph B) 57 mph C) 55 mph D) 54 mph

Answer: B

Solve the equation.

- 146) $\frac{a}{3} - \frac{1}{3} = -5$ 146) _____
A) {16} B) {-16} C) {14} D) {-14}

Answer: D

- 147) $5(y + 8) = 6(y - 7)$ 147) _____
A) {-2} B) {82} C) {2} D) {-82}

Answer: B

Solve the problem.

- 148) A biologist collected 180 fern and moss samples. There were 48 fewer ferns than moss samples. How many fern samples did the biologist collect? 148) _____
A) 66 fern samples B) 81 fern samples
C) 132 fern samples D) 114 fern samples

Answer: A

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

- 149) Four times a number added to 8 times the number equals 36. 149) _____
A) $4x(8 + x) = 36$; 4.5 B) $4x - 8x = 36$; -4.5
C) $4(x + 8) = 36x$; 1 D) $4x + 8x = 36$; 3

Answer: D

Solve the formula for the specified variable.

- 150) $A = \frac{1}{2}bh$ for b 150) _____
A) $b = \frac{A}{2h}$ B) $b = \frac{h}{2A}$ C) $b = \frac{2A}{h}$ D) $b = \frac{Ah}{2}$

Answer: C

Solve the percent problem.

- 151) At the end of the day, a storekeeper had \$1133 in the cash register, counting both the sale of goods and the sales tax of 3%. Find the amount that is the tax. 151) _____
A) \$23 B) \$38 C) \$33 D) \$28

Answer: C

- 152) Brand X copier advertises that its copiers run 14% longer between service calls than its competitor. If Brand X copiers run 35,400 copies between service calls, how many copies would the competitor run (to the nearest copy)? 152) _____
- A) 31,053 copies B) 40,356 copies C) 19,032 copies D) 30,444 copies
- Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Answer the question or provide an explanation.

- 153) The volume of a solid is to be 108 cubic units. Give two sets of possible dimensions for the solid. 153) _____
- Answer: Answers will vary, but the product of the dimensions must be 108.

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

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

- 154) $2[3 - (8 - 5r)] - r = -16 + 3(2 + 3r)$ 154) _____
- A) Contradiction; \emptyset B) Conditional; $\{-8\}$
C) Identity; {all real numbers} D) Conditional; $\{16\}$
- Answer: C

Solve the formula for the specified variable.

- 155) $V = \frac{1}{3}Bh$ for h 155) _____
- A) $h = \frac{B}{3V}$ B) $h = \frac{V}{3B}$ C) $h = \frac{3V}{B}$ D) $h = \frac{3B}{V}$
- Answer: C

Solve the investment problem.

- 156) Roberto invested some money at 7%, and then invested \$3000 more than twice this amount at 12%. His total annual income from the two investments was \$4700. How much was invested at 12%? 156) _____
- A) \$9000 B) \$28,000 C) \$3100 D) \$31,000
- Answer: D

Solve the problem.

- 157) On a biology test, a student answered 25 questions correctly but did not pass. On a second attempt, the student answered 31 questions correctly. What was the percent increase in the number of questions answered correctly? 157) _____
- A) 24% B) 76% C) 6% D) 19.4%
- Answer: A

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

- 158) A number divided by 78 158) _____
- A) $78x$ B) $\frac{x}{78}$ C) $78 + x$ D) $78 - x$
- Answer: B

Use the variable x for the unknown. Write an equation representing the verbal sentence and solve the problem.

- 159) If 4 times a number is added to -7 , the result is equal to 11 times the number. 159) _____
A) $11(4x - 7) = -7; -1$ B) $15x - 11x = 7; 1$
C) $4x + (-7) = 11x; 1$ D) $4x + (-7) = 11x; -1$

Answer: D

Answer the question or provide an explanation.

- 160) Which of the following is not a correct answer when the formula $A = \frac{1}{2}h(b + B)$ is solved for b ? 160) _____

$\frac{2A - B}{h}$ $\frac{2A}{h} - B$ $\frac{2A - Bh}{h}$ $\frac{(A - \frac{1}{2}Bh)}{(\frac{1}{2}h)}$

A) $\frac{2A}{h} - B$ B) $\frac{2A - B}{h}$ C) $\frac{A - \frac{1}{2}Bh}{\frac{1}{2}h}$ D) $\frac{2A - Bh}{h}$

Answer: B

Solve the percent problem.

- 161) In a local election, 29,500 people voted. This was an increase of 6% over the last election. How many people voted in the last election? 161) _____
A) 31,270 people B) 31,383 people C) 27,830 people D) 27,730 people

Answer: C

Solve the problem.

- 162) Janet drove 380 kilometers and the trip took 5 hours. How fast was Janet traveling? 162) _____
A) $\frac{1}{76}$ km/hr B) 1900 km/hr C) 77 km/hr D) 76 km/hr

Answer: D

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

- 163) The difference of a number and 2.7 163) _____
A) $x - 2.7$ B) $2.7x$ C) 2.7 D) $x + 2.7$

Answer: A

Provide an appropriate response.

- 164) Some government bodies determine taxes by mills/dollar of assessed valuation. One mill is one tenth of a cent. Write one mill as a decimal. 164) _____
A) 0.001 B) 0.1 C) 0.01 D) 10

Answer: A

Decide whether an expression or an equation is given.

- 165) $3t + 3 = 6$ 165) _____
A) expression B) equation

Answer: B

Solve the equation.

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

166) _____

- A) {-12} B) {3} C) {-4} D) {4}
Answer: C

Solve the problem involving consecutive integers.

167) If the first and third of three consecutive odd integers are added, the result is 75 less than five times the second integer. Find the third integer.

167) _____

- A) 27 B) 25 C) 50 D) 23
Answer: A

Solve the problem.

168) The population of a city increased from 1,003,682 in 1995 to 1,356,831 in 2005. To the nearest tenth, what was the percent increase?

168) _____

- A) 3.5% B) 35.2% C) 26.0% D) 2.6%
Answer: B

Translate as an inequality. Use x to represent the number.

169) A number is less than or equal to 20.

169) _____

- A) $x \leq 20$ B) $20 \leq x$ C) $x \geq 20$ D) $x < 20$
Answer: A

Solve the equation.

170) $\frac{-4x+3}{2} + 3 = -\frac{7x}{3}$

170) _____

- A) $\left\{-\frac{9}{2}\right\}$ B) $\left\{-\frac{27}{2}\right\}$ C) $\left\{\frac{27}{26}\right\}$ D) $\left\{\frac{9}{2}\right\}$
Answer: B

Solve.

171) $0.5(400) + 0.08p = 0.2(400 + p)$

171) _____

- A) {144} B) {10,000} C) {1000} D) {14.4}
Answer: C

Solve the problem.

172) During a laboratory experiment, a student found that the melting point of her unknown substance was 86°C. Find the corresponding Fahrenheit temperature. Round to the nearest tenth, if necessary.

172) _____

- A) 212.4°F B) 65.6°F C) 30°F D) 186.8°F
Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

173) True or false? The solution of the equation $7y - 6 = 7y + 3$ is 0.

173) _____

Answer: False. The equation is a contradiction.

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

Solve the equation.

174) $5(2z - 4) = 9(z + 5)$

A) {30}

B) {-25}

C) {25}

D) {65}

174) _____

Answer: D

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

175) If one step in the solution of an equation is $74 = -77$, what is the final solution of the equation?

175) _____

Answer: The solution set is \emptyset .

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

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

176) $4x + 7(x + 1) + 3 = 10 - 3x$

A) Conditional; {1}

B) Conditional; {0}

C) Identity; {all real numbers}

D) Contradiction; \emptyset

176) _____

Answer: B

Solve the problem.

177) What is the perimeter of a rectangle of length 35 ft and width 11 ft?

A) 92 ft

B) 46 ft

C) 81 ft

D) 184 ft

177) _____

Answer: A

Solve the equation.

178) $\frac{2x}{5} - \frac{x}{3} = 2$

A) {30}

B) {-60}

C) {-30}

D) {60}

178) _____

Answer: A

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

179) True or false? This pair of equations is equivalent. $4x - 7 = 5$ and $5x + 6 = 21$

179) _____

Answer: True. Each has the solution set {3}.

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

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

180) $5(2f - 31) = 10f - 155$

A) Contradiction; \emptyset

B) Identity; \emptyset

C) Conditional; {0}

D) Identity; {all real numbers}

180) _____

Answer: D

Solve the formula for the specified variable.

181) $F = \frac{9}{5}(K - 273) + 32$ for K

181) _____

A) $K = \frac{5}{9}(F + 32)$

B) $K = \frac{5}{9}(F - 241)$

C) $K = \frac{5}{9}(F - 32) + 273$

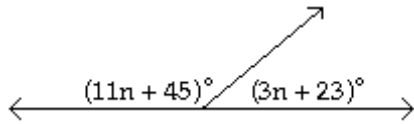
D) $K = \frac{5}{9}(F + 273) - 32$

Answer: C

Solve the problem.

182) Find the measures of the supplementary angles.

182) _____



A) 48° and 18°

B) 133° and 43°

C) 43° and 47°

D) 133° and 47°

Answer: D

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

183) The quotient of a number and 37

183) _____

A) $37 - x$

B) $37x$

C) $37 + x$

D) $\frac{x}{37}$

Answer: D

Solve the problem involving consecutive integers.

184) If three times the smaller of two consecutive integers is added to four times the larger, the result is 46. Find the smaller integer.

184) _____

A) 6

B) 5

C) 7

D) 18

Answer: A

Decide whether an expression or an equation is given.

185) $\frac{x - 4}{7} - \frac{x + 4}{9} = 8$

185) _____

A) expression

B) equation

Answer: B

Solve the formula for the specified variable.

186) $T = \pi R^2 + \pi R s$ for s

186) _____

A) $s = T - R$

B) $s = \frac{T - \pi R^2}{\pi R}$

C) $s = \pi(T - R)$

D) $s = \frac{T}{\pi R} - 1$

Answer: B

Decide whether an expression or an equation is given.

187) $5 + (4x + 5)$

187) _____

A) expression

B) equation

Answer: A

Solve the percent problem.

188) After receiving a discount of 5.5% on its bulk order of typewriter ribbons, John's Office Supply pays \$2835. What was the price of the order before the discount? 188) _____

A) \$3000

B) \$2991

C) \$2821

D) \$2679

Answer: A

Answer Key

Testname: CH01

- 1) D
- 2) B
- 3) C
- 4) B
- 5) C
- 6) C
- 7) C
- 8) A
- 9) A
- 10) Answers will vary. An example would be: One number is twice another and their sum is 60. Find the larger number.
To solve this problem, the equation would be $x + 2x = 60$. $x = 20$. The problem asks for the larger number, which is $2x = 2(20) = 40$.
- 11) A
- 12) B
- 13) B
- 14) A
- 15) B
- 16) D
- 17) A
- 18) A
- 19) A
- 20) C
- 21) $90 - r$
- 22) B
- 23) B
- 24) Answers will vary. The student was not wrong. For example, if the problem asked to find the total amount, she may have intended to provide her final result in cents and not in dollars. Furthermore, if she had wanted to provide a final result in dollars, all she would need to do is divide the final result in cents by 100. As long as she was consistent in her use of denominations based on cents, her results would be valid.
- 25) A
- 26) D
- 27) B
- 28) B
- 29) C
- 30) D
- 31) C
- 32) B
- 33) D
- 34) C
- 35) B
- 36) B
- 37) C
- 38) The variable t cannot appear on both sides of the equation.
- 39) B
- 40) D
- 41) C
- 42) B
- 43) A
- 44) D
- 45) D

Answer Key

Testname: CH01

- 46) A
- 47) B
- 48) C
- 49) No. Not enough information is given.
- 50) C
- 51) D
- 52) A
- 53) A
- 54) A
- 55) A
- 56) B
- 57) B
- 58) B
- 59) C
- 60) C
- 61) C
- 62) C
- 63) B
- 64) Yes. You would need to convert the rate to miles per minute or the time to hours before proceeding to solve for the distance in miles.
- 65) C
- 66) D
- 67) C
- 68) D
- 69) A
- 70) A
- 71) C
- 72) D
- 73) An algebraic expression is a collection of variables, constants, and operators that represents some value. An algebraic equation is a statement that asserts that two expressions are equivalent. Expressions translate as phrases. Equations include the = symbol and translate as sentences.
- 74) D
- 75) A
- 76) A
- 77) D
- 78) C
- 79) C
- 80) B
- 81) A
- 82) B
- 83) A
- 84) C
- 85) D
- 86) rs
- 87) B
- 88) A
- 89) B
- 90) D
- 91) B
- 92) B

Answer Key

Testname: CH01

- 93) C
- 94) C
- 95) A
- 96) C
- 97) D
- 98) A
- 99) B
- 100) A
- 101) B
- 102) B
- 103) A
- 104) Since the equation is an identity, the solution set is {all real numbers}.
- 105) D
- 106) $\frac{m}{2}$ or $\frac{1}{2} m$
- 107) C
- 108) B
- 109) B
- 110) B
- 111) B
- 112) Answers will vary, but the answer should state that equations are written by multiplying the number of coins or tickets by their value, or the amount of an investment by its percent of income.
- 113) B
- 114) C
- 115) B
- 116) No. The equation is an identity with solution set {all real numbers}.
- 117) B
- 118) The variable r cannot appear on both sides of the final result.
- 119) A
- 120) A
- 121) C
- 122) B
- 123) B
- 124) D
- 125) A
- 126) C
- 127) A
- 128) A
- 129) B
- 130) B
- 131) D
- 132) C
- 133) D
- 134) B
- 135) D
- 136) A
- 137) D
- 138) B
- 139) B
- 140) C

Answer Key

Testname: CH01

- 141) A
- 142) D
- 143) Answers will vary.
- 144) A
- 145) B
- 146) D
- 147) B
- 148) A
- 149) D
- 150) C
- 151) C
- 152) A
- 153) Answers will vary, but the product of the dimensions must be 108.
- 154) C
- 155) C
- 156) D
- 157) A
- 158) B
- 159) D
- 160) B
- 161) C
- 162) D
- 163) A
- 164) A
- 165) B
- 166) C
- 167) A
- 168) B
- 169) A
- 170) B
- 171) C
- 172) D
- 173) False. The equation is a contradiction.
- 174) D
- 175) The solution set is \emptyset .
- 176) B
- 177) A
- 178) A
- 179) True. Each has the solution set $\{3\}$.
- 180) D
- 181) C
- 182) D
- 183) D
- 184) A
- 185) B
- 186) B
- 187) A
- 188) A