110, 113, 117, 122, 125, 126, 142, 144, 147, 149, 159, 154, 160, 169
170, 172, 174

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21	2	PERCENTAGE	6, 8, 10, 13, 24, 32, 36, 40, 47, 50, 67, 95, 100, 101,	114, 120, 127, 138
13	3	BASES & INDICES	20, 34, 41, 45, 48, 64, 81, 96, 97, 145,	153, 163, 166
5	4	RATIO & PROPORTION	37, 54, 82, 118, 165,	
6	5	AVERAGES	84, 104, 116, 129, 137, 157	
16	6	POLYNOMIALS	7, 18, 39, 58, 62, 72, 75, 91, 99, 107,	111, 121, 128, 133, 146, 155
12	7	EQUATIONS & INEQUALITIES	23, 26, 33, 38, 68, 74, 79,	83, 92, 134, 152, 171
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2	13	WORD PROBLEMS - MIXTURES	52, 131,	
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4	26	GRAPHS	31, 54, 71, 158	
23	27	FRACTIONS & DECIMALS	2, 4, 5, 11, 25, 27, 43, 51, 56, 65, 66, 73,	88, 93, 108, 112

176 124, 135, 162, 164, 167, 173, 176

2 → 143, 156, 159

Problem Solving 8 on Pg 87

Answers on Pg

Solve the problem and indicate the best of the answer choices given.
Numbers: All numbers used are real numbers.
Figures: All figures accompanying a problem solving question are intended to provide information useful in solving the problem. Figures are drawn as accurately as possible EXCEPT when a specific problem states that its figure is not drawn to scale. Straight lines may sometimes appear jagged. All figures lie in a plane unless otherwise indicated.

1. If Mario was 32 years old 8 years ago, how old was he x years ago?

   (A) $x - 40$
   (B) $x - 24$
   (C) $40 - x$
   (D) $24 - x$
   (E) $24 + x$

2. If k is an integer and $0{,}0010101 \times 10^k$ is greater than 1,000, what is the least possible value of k?

   (A) 2
   (B) 3
   (C) 4
   (D) 5
   (E) 6

3. If $\left(b-3\right)\left(4+\frac{2}{b}\right)=0$ and $b \neq 3$, then $b =$

   (A) -8
   (B) -2
   (C) $-\frac{1}{2}$
   (D) $\frac{1}{2}$
   (E) 2

4. The number $2 - 0.5$ is how many times the number $1 - 0.5$?

   (A) 2
   (B) 2.5
   (C) 3
   (D) 3.5
   (E) 4

5. In which of the following pairs are the two numbers reciprocals of each other?

   I. 3 and $\frac{1}{3}$
   II. $\frac{1}{17}$ and $\frac{-1}{17}$
   III. $\sqrt{3}$ and $\frac{\sqrt{3}}{3}$

   (A) I only
   (B) II only
   (C) I and II
   (D) I and III
   (E) II and III

6. The price of a certain television set is discounted by 10 percent, and the reduced price is then discounted by 10 percent. This series of successive discounts is equivalent to a single discount of

   (A) 20%
   (B) 19%
   (C) 18%
   (D) 11%
   (E) 10%

7. Which of the following equations is NOT equivalent to $25x^2 = y^2 - 4$?

   (A) $25x^2 + 4 = y^2$
   (B) $75x^2 = 3y^2 - 12$
   (C) $25x^2 = (y + 2)(y - 2)$
   (D) $5x = y - 2$
   (E) $x^2 = \frac{y^2 - 4}{25}$

8. If there are 664,579 prime numbers among the first 10 million positive integers, approximately what percent of the first 10 million positive integers are prime numbers?

(A) 0.0066%
(B) 0.066%
(C) 0.66%
(D) 6.6%
(E) 66%

9. How many multiples of 4 are there between 12 and 96, inclusive?

(A) 21
(B) 22
(C) 23
(D) 24
(E) 25

10. In Country X a returning tourist may import goods with a total value of $500 or less tax free, but must pay an 8 percent tax on the portion of the total value in excess of $500. What tax must be paid by a returning tourist who imports goods with a total value of $730?

(A) $58.40
(B) $40.00
(C) $24.60
(D) $18.40
(E) $16.00

11. Which of the following is greater than $\frac{2}{3}$?

(A) $\frac{33}{50}$
(B) $\frac{8}{11}$
(C) $\frac{3}{5}$
(D) $\frac{13}{27}$
(E) $\frac{5}{8}$

12. If 60 percent of a rectangular floor is covered by a rectangular rug that is 9 feet by 12 feet, what is the area, in square feet, of the floor?

(A) 65
(B) 108
(C) 180
(D) 270
(E) 300

13. If "basis points" are defined so that 1 percent is equal to 100 basis points, then 82.5 percent is how many basis points greater than 62.5 percent?

(A) 0.02
(B) 0.2
(C) 20
(D) 200
(E) 2,000

14. Three machines, individually, can do a certain job in 4, 5, and 6 hours, respectively. What is the greatest part of the job that can be done in one hour by two of the machines working together at their respective rates?

(A) $\frac{11}{30}$
(B) $\frac{9}{20}$
(C) $\frac{3}{5}$
(D) $\frac{11}{15}$
(E) $\frac{5}{6}$

15. The value of $-3-(-10)$ is how much greater than the value of $-10-(-3)$?

(A) 0
(B) 6
(C) 7
(D) 14
(E) 26

16. If X and Y are sets of integers, $X \Delta Y$ denotes the set of integers that belong to set X or set Y, but not both. If X consists of 10 integers, Y consists of 18 integers, and 6 of the integers are in both X and Y, then $X \Delta Y$ consists of how many integers?

(A) 6
(B) 16
(C) 22
(D) 30
(E) 174

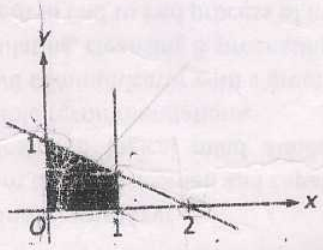
		x
37	38	15
		y

17. In the figure above, the sum of the three numbers in the horizontal row equals the product of the three numbers in the vertical column. What is the value of xy?

(A) 6
(B) 15
(C) 35
(D) 75
(E) 90

18. $\left(1+\sqrt{5}\right)\left(1-\sqrt{5}\right) =$

(A) -4
(B) 2
(C) 6
(D) $-4-2\sqrt{5}$
(E) $6-2\sqrt{5}$



19. In the rectangular coordinate system above, the shaded region is bounded by straight lines. Which of the following is NOT an equation of one of the boundary lines?

(A) $x = 0$
(B) $y = 0$
(C) $x = 1$
(D) $x - y = 0$
(E) $x + 2y = 2$

20. A certain population of bacteria doubles every 10 minutes. If the number of bacteria in the population initially was 10^4, what was the number in the population 1 hour later?

(A) $2(10^4)$
(B) $6(10^4)$
(C) $(2^6)(10^4)$
(D) $(10^6)(10^4)$
(E) $(10^4)^6$

21. How many minutes does it take to travel 120 miles at 400 miles per hour?

(A) 3
(B) $3\frac{1}{3}$
(C) $8\frac{2}{3}$
(D) 12
(E) 18

22. If the perimeter of a rectangular garden plot is 34 feet and its area is 60 square feet, what is the length of each of the longer sides?

(A) 5 ft
(B) 6 ft
(C) 10 ft
(D) 12 ft
(E) 15 ft

23. A certain manufacturer produces items for which the production costs consist of annual fixed costs totaling $130,000 and variable costs averaging $8 per item. If the manufacturer's selling price per item is $15, how many items must the manufacturer produce and sell to earn an annual profit of $150,000 ?

(A) 2,858
(B) 18,667
(C) 21,429
(D) 35,000
(E) 40,000

24. In a poll of 66,000 physicians, only 20 percent responded; of these, 10 percent disclosed their preference for pain reliever X. How many of the physicians who responded did not disclose a preference for pain reliever X?

(A) 1,320
(B) 5,280
(C) 6,600
(D) 10,560
(E) 11,880

25. $\frac{3}{100} + \frac{5}{1,000} + \frac{7}{100,000} =$

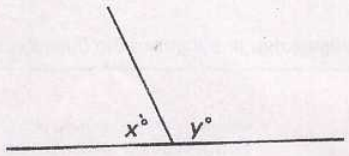
(A) 0.357
(B) 0.3507
(C) 0.35007
(D) 0.0357
(E) 0.03507

26. If the number n of calculators sold per week varies with the price p in dollars according to the equation $n = 300 - 20p$, what would be the total weekly revenue from the sale of $10 calculators?

(A) $100
(B) $300
(C) $1,000
(D) $2,800
(E) $3,000

27. Which of the following fractions is equal to the decimal 0.0625 ?

(A) $\frac{5}{8}$
(B) $\frac{3}{8}$
(C) $\frac{1}{16}$
(D) $\frac{1}{18}$
(E) $\frac{3}{80}$



28. In the figure above, if $\frac{x}{x+y} = \frac{3}{8}$, then $x =$

(A) 60
(B) 67.5
(C) 72
(D) 108
(E) 112.5

29. If positive integers x and y are not both odd, which of the following must be even?

(A) xy
(B) $x + y$
(C) $x - y$
(D) $x + y - 1$
(E) $2(x + y) - 1$

30. On 3 sales John has received commissions of $240, $80, and $110, and he has 1 additional sale pending. If John is to receive an average (arithmetic mean) commission of exactly $150 on the 4 sales, then the 4th commission must be

(A) $164
(B) $170
(C) $175
(D) $182
(E) $185

31. The annual budget of a certain college is to be shown on a circle graph. If the size of each sector of the graph is to be proportional to the amount of the budget it represents, how many degrees of the circle should be used to represent an item that is 15 percent of the budget?

(A) 15°
(B) 36°
(C) 54°
(D) 90°
(E) 150°

32. During a two-week period, the price of an ounce of silver increased by 25 percent by the end of the first week and then decreased by 20 percent of this new price by the end of the second week. If the price of silver was x dollars per ounce at the beginning of the two-week period, what was the price, in dollars per ounce, by the end of the period?

(A) $0.8x$
(B) $0.95x$
(C) x
(D) $1.05x$
(E) $1.25x$

33. In a certain pond, 50 fish were caught, tagged, and returned to the pond. A few days later, 50 fish were caught again, of which 2 were found to have been tagged. If the percent of tagged fish in the second catch approximates the percent of tagged fish in the pond, what is the approximate number of fish in the pond?

(A) 400
(B) 625
(C) 1,250
(D) 2,500
(E) 10,000

34. $\sqrt{16+16} =$

(A) $4\sqrt{2}$
(B) $8\sqrt{2}$
(C) $16\sqrt{2}$
(D) 8
(E) 16

35. An automobile's gasoline mileage varies, depending on the speed of the automobile, between 18.0 and 22.4 miles per gallon, inclusive. What is the maximum distance, in miles, that the automobile could be driven on 15 gallons of gasoline?

(A) 336
(B) 320
(C) 303
(D) 284
(E) 270

36. The organizers of a fair projected a 25 percent increase in attendance this year over that of last year, but attendance this year actually decreased by 20 percent. What percent of the projected attendance was the actual attendance?

(A) 45%
(B) 56%
(C) 64%
(D) 75%
(E) 80%

37. What is the ratio of $\frac{3}{4}$ to the product $4\left(\frac{3}{4}\right)$?

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{4}{9}$
(D) $\frac{9}{4}$
(E) 4

38. If $3 - x = 2x - 3$, then $4x =$

(A) -24
(B) -8
(C) 0
(D) 8
(E) 24

39. If $x > 3{,}000$, then the value of $\frac{x}{2x+1}$ is closest to

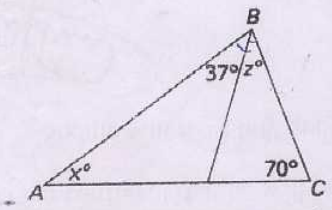
(A) $\frac{1}{6}$
(B) $\frac{1}{3}$
(C) $\frac{10}{21}$
(D) $\frac{1}{2}$
(E) $\frac{3}{2}$

40. If 18 is 15 percent of 30 percent of a certain number, what is the number?

(A) 9
(B) 36
(C) 40
(D) 81
(E) 400

41. If $x = (0.08)^2$, $y = \frac{1}{(0.08)^2}$, and $z = (1 - 0.08)^2 - 1$, which of the following is true?

(A) $x = y = z$
(B) $y < z < x$
(C) $z < x < y$
(D) $y <$ and $x = z$.
(E) $x < y$ and $x = z$.



42. In ΔABC above, what is x in terms of z?

(A) $z + 73$
(B) $z - 73$
(C) $70 - z$
(D) $z - 70$
(E) $73 - z$

43. $\frac{(3)(0.072)}{0.54} =$

(A) 0.04
(B) 0.3
(C) 0.4
(D) 0.8
(E) 4.0

44. What is the maximum number of $1\frac{1}{4}$ foot pieces of wire that can be cut from a wire that is 24 feet long?

(A) 11
(B) 18
(C) 19
(D) 20
(E) 30

$$\frac{61.24 \times (0.998)^2}{\sqrt{403}}$$

45. The expression above is approximately equal to

(A) 1
(B) 3
(C) 4
(D) 5
(E) 6

46. If the numbers $\frac{17}{24}$, $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$, and $\frac{9}{16}$ were ordered from greatest to least, the middle number of the resulting sequence would be

(A) $\frac{17}{24}$
(B) $\frac{1}{2}$
(C) $\frac{3}{8}$
(D) $\frac{3}{4}$
(E) $\frac{9}{16}$

47. Last year if 97 percent of the revenues of a company came from domestic sources and the remaining revenues, totaling $450,000, came from foreign sources, what was the total of the company's revenues?

(A) $1,350,000
(B) $1,500,000
(C) $4,500,000
(D) $15,000,000
(E) $150,000,000

48. $\frac{2 + 2\sqrt{6}}{2} =$

(A) $\sqrt{6}$
(B) $2\sqrt{6}$
(C) $1 + \sqrt{6}$
(D) $1 + 2\sqrt{6}$
(E) $2 + \sqrt{6}$

49. A certain fishing boat is chartered by 6 people who are to contribute equally to the total charter cost of $480. If each person contributes equally to a $150 down payment, how much of the charter cost will each person still owe?

(A) $80
(B) $66
(C) $55
(D) $50
(E) $45

50. Craig sells major appliances. For each appliance he sells, Craig receives a commission of $50 plus 10 percent of the selling price. During one particular week Craig sold 6 appliances for selling prices totaling $3,620. What was the total of Craig's commissions for that week?

(A) $412
(B) $526
(C) $585
(D) $605
(E) $662

51. What number when multiplied by $\frac{4}{7}$ yields $\frac{6}{7}$ as the result?

(A) $\frac{2}{7}$
(B) $\frac{2}{3}$
(C) $\frac{3}{2}$
(D) $\frac{24}{7}$
(E) $\frac{7}{2}$

52. If 3 pounds of dried apricots that cost x dollars per pound are mixed with 2 pounds of prunes that cost y dollars per pound, what is the cost, in dollars, per pound of the mixture?

(A) $\frac{3x+2y}{5}$
(B) $\frac{3x+2y}{x+y}$
(C) $\frac{3x+2y}{xy}$
(D) $5(3x+2y)$
(E) $3x+2y$

53. Which of the following must be equal to zero for all real numbers x?

I. $-\frac{1}{x}$
II. $x+(-x)$
III. x^0

(A) I only
(B) II only
(C) I and III only
(D) II and III only
(E) I, II, and III

	City A	City B	City C	City D	City E	City F
City A						
City B						
City C						
City D						
City E						
City F						

54. In the table above, what is the least number of table entries that are needed to show the mileage between each city and each of the other five cities?

(A) 15
(B) 1
(C) 5
(D) 0
(E) 6

55. If $(t-8)$ is a factor of $t^2 - kt - 48$, then $k =$

(A) 16
(B) 12
(C) 2
(D) 6
(E) 14

56. $\frac{31}{125} =$

(A) 0.248
(B) 0.252
(C) 0.284
(D) 0.312
(E) 0.320

57. Members of a social club met to address 280 newsletters. If they addressed $\frac{1}{4}$ of the newsletters during the first hour and $\frac{2}{5}$ of the remaining newsletters during the second hour, how many newsletters did they address during the second hour?

(A) 28
(B) 42
(C) 63
(D) 84
(E) 112

58. $(\sqrt{3}+2)(\sqrt{3}-2) =$

(A) $\sqrt{3} - 4$
(B) $\sqrt{6} - 4$
(C) -1
(D) 1
(E) 2

59. The arithmetic mean and standard deviation of a certain normal distribution are 13.5 and 1.5, respectively. What value is exactly 2 standard deviations less than the mean?

(A) 10.5
(B) 11.0
(C) 11.5
(D) 12.0
(E) 12.5

60. When N is divided by T, the quotient is S and the remainder is V. Which of the following expressions is equal to N?

(A) ST
(B) $S + V$
(C) $ST + V$
(D) $T(S + V)$
(E) $T(S - V)$

38, 69, 22, 73, 31, 47, 13, 82

61. Which of the following numbers is greater than three-fourths of the numbers but less than one-fourth of the numbers in the list above?

(A) 56
(B) 68
(C) 69
(D) 71
(E) 73

62. The cost of picture frame M is \$10.00 less than 3 times the cost of picture frame N. If the cost of frame M is \$50.00, what is the cost of frame N?

(A) \$13.33
(B) \$16.66
(C) \$20.00
(D) \$26.66
(E) \$40.00

63. If $S = \{0, 4, 5, 2, 11, 8\}$, how much greater than the median of the numbers in S is the mean of the numbers in S?

(A) 0.5
(B) 1.0
(C) 1.5
(D) 2.0
(E) 2.5

64. The value of $\sqrt[3]{-89}$ is

(A) between -9 and -10
(B) between -8 and -9
(C) between -4 and -5
(D) between -3 and -4
(E) undefined

65. Of the following, which is least?

(A) $\frac{1}{0.2}$

(B) $(0.2)^2$

(C) 0.02

(D) $\frac{0.2}{2}$

(E) 0.2

66. If $d = 2.0453$ and d^* is the decimal obtained by rounding d to the nearest hundredth, what is the value of $d^* - d$?

(A) −0.0053
(B) −0.0003
(C) .0007
(D) .0047
(E) .0153

67. Company K's earnings were $12 million last year. If this year's earnings are projected to be 150 percent greater than last year's earnings, what are Company K's projected earnings this year?

(A) $13.5 million
(B) $15 million
(C) $18 million
(D) $27 million
(E) $30 million

68. If −3 is 6 more than x, what is the value of $\frac{x}{3}$?

(A) −9
(B) −6
(C) −3
(D) −1
(E) 1

69. An athlete runs R miles in H hours, then rides a bicycle Q miles in the same number of hours. Which of the following represents the athlete's average speed, in miles per hour, for these two activities combined?

(A) $\frac{R-Q}{H}$

(B) $\frac{R-Q}{2H}$

(C) $\frac{2(R+Q)}{H}$

(D) $\frac{2(R+Q)}{2H}$

(E) $\frac{R+Q}{2H}$

70. If a certain sample of data has a mean of 20.0 and a standard deviation of 3.0, which of the following values is more than 2.5 standard deviations from the mean?

(A) 12.0
(B) 13.5
(C) 17.0
(D) 23.5
(E) 26.5

County	Amount Recycled	Amount Disposed of
A	16,700	142,800
B	8,800	48,000
C	13,000	51,400
D	3,900	20,300
E	3,300	16,200

71. The table above shows the amount of waste material, in tons, recycled by each of five counties in a single year and the amount of waste material, also in tons, that was disposed of in landfills by the five counties in that year. Which county had the lowest ratio of waste material disposed of to waste material recycled in the year reported in the table?

(A) A
(B) B
(C) C
(D) D
(E) E

72. If $a = 7$ and $b = -7$, what is the value of $2a - 2b + b^2$?

(A) -49
(B) 21
(C) 49
(D) 63
(E) 77

73. Equal amounts of water were poured into two empty jars of different capacities, which made one jar $\frac{1}{4}$ full and the other jar $\frac{1}{3}$ full. If the water in the jar with the lesser capacity is then poured into the jar with the greater capacity, what fraction of the larger jar will be filled with water?

(A) $\frac{1}{7}$
(B) $\frac{2}{7}$
(C) $\frac{1}{2}$
(D) $\frac{7}{12}$
(E) $\frac{2}{3}$

74. If Mel saved more than \$10 by purchasing a sweater at a 15 percent discount, what is the smallest amount the original price of the sweater could be, to the nearest dollar?

(A) 45
(B) 67
(C) 75
(D) 83
(E) 150

75. If $x = -1$, then $-(x^4 + x^3 + x^2 + x) =$

(A) -10
(B) -4
(C) 0
(D) 4
(E) 10

76. Today Rose is twice as old as Sam and Sam is 3 years younger than Tina. If Rose, Sam, and Tina are all alive 4 years from today, which of the following must be true on that day?

I. Rose is twice as old as Sam.
II. Sam is 3 years younger than Tina.
III. Rose is older than Tina.

(A) I only
(B) II only
(C) III only
(D) I and II
(E) II and III

77. If a square region has area x, what is the length of its diagonal in terms of x?

(A) $\sqrt{x}$
(B) $\sqrt{2x}$
(C) $2\sqrt{x}$
(D) $x\sqrt{2}$
(E) $2x$

78. The temperature in degrees Celsius (C) can be converted to temperature in degrees Fahrenheit (F) by the formula $F = \frac{9}{5}C + 32$. What is the temperature at which $F = C$?

(A) 20°
(B) $\left(\frac{32}{5}\right)°$
(C) 0°
(D) -20°
(E) -40°

79. During a car trip, Maria stopped to rest after she traveled $\frac{1}{2}$ of the total distance to her destination. She stopped again after she traveled $\frac{1}{4}$ of the distance remaining between her first stop and her destination, and then she drove the remaining 120 miles to her destination. What was the total distance, in miles, from Maria's starting point to her destination?

(A) 280
(B) 320
(C) 360
(D) 420
(E) 480

80. If x is to be chosen at random from the set {1, 2, 3, 4} and y is to be chosen at random from the set {5, 6, 7}, what is the probability that xy will be even?

(A) $\frac{1}{6}$

(B) $\frac{1}{3}$

(C) $\frac{1}{2}$

(D) $\frac{2}{3}$

(E) $\frac{5}{6}$

81. Which of the following is equal to x^{18} for all positive values of x?

(A) $x^9 + x^9$

(B) $(x^2)^9$

(C) $(x^9)^9$

(D) $(x^3)^{15}$

(E) $\frac{x^4}{x^{22}}$

82. Three business partners, Q, R, and S, agree to divide their total profit for a certain year in the ratios 2 : 5 : 8, respectively. If Q's share was \$4,000, what was the total profit of the business partners for the year?

(A) \$26,000
(B) \$30,000
(C) \$52,000
(D) \$60,000
(E) \$300,000

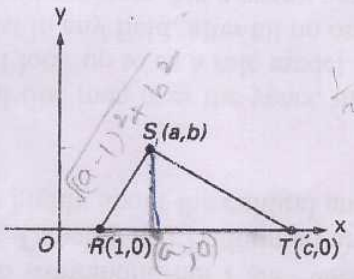
83. If $u > t$, $r > q$, $s > t$, and $t > r$, which of the following must be true?

I. $u > s$
II. $s > q$
III. $u > r$

(A) I only
(B) II only
(C) III only
(D) I and II
(E) II and III

84. The average (arithmetic mean) of 6 numbers is 8.5. When one number is discarded, the average of the remaining numbers becomes 7.2. What is the discarded number?

(A) 7.8
(B) 9.8
(C) 10.0
(D) 12.4
(E) 15.0



85. In the rectangular coordinate system above, the area of ΔRST is

(A) $\frac{bc}{2}$

(B) $\frac{b(c-1)}{2}$

(C) $\frac{c(b-1)}{2}$

(D) $\frac{a(c-1)}{2}$

(E) $\frac{c(a-1)}{2}$

86. Which of the following equations has a root in common with $x^2 - 6x + 5 = 0$?

(A) $x^2 + 1 = 0$
(B) $x^2 - x - 2 = 0$
(C) $x^2 - 10x - 5 = 0$
(D) $2x^2 - 2 = 0$
(E) $x^2 - 2x - 3 = 0$

87. One inlet pipe fills an empty tank in 5 hours. A second inlet pipe fills the same tank in 3 hours. If both pipes are used together, how long will it take to fill $\frac{2}{3}$ of the tank?

(A) $\frac{8}{15}$ hr
(B) $\frac{3}{4}$ hr
(C) $\frac{5}{4}$ hr
(D) $\frac{15}{8}$ hr
(E) $\frac{8}{3}$ hr

88. $\left(\frac{1}{5}\right)^2 - \left(\frac{1}{5}\right)\left(\frac{1}{4}\right) =$

(A) $-\frac{1}{20}$
(B) $-\frac{1}{100}$
(C) $\frac{1}{100}$
(D) $\frac{1}{20}$
(E) $\frac{1}{5}$

89. If the length and width of a rectangular garden plot were each increased by 20 percent, what would be the percent increase in the area of the plot?

(A) 20%
(B) 24%
(C) 36%
(D) 40%
(E) 44%

90. The population of a bacteria culture doubles every 2 minutes. Approximately how many minutes will it take for the population to grow from 1,000 to 500,000 bacteria?

(A) 10
(B) 12
(C) 14
(D) 16
(E) 18

91. For a light that has an intensity of 60 candles at its source, the intensity in candles, S, of the light at a point d feet from the source is given by the formula $S = \frac{60k}{d^2}$, where k is a constant. If the intensity of the light is 30 candles at a distance of 2 feet from the source, what is the intensity of the light at a distance of 20 feet from the source?

(A) $\frac{3}{10}$ candle
(B) $\frac{1}{2}$ candle
(C) 1 candle
(D) 2 candles
(E) 3 candles

92. If $b < 2$ and $2x - 3b = 0$, which of the following must be true?

(A) $x > -3$
(B) $x < 2$
(C) $x = 3$
(D) $x < 3$
(E) $x > 3$

93. $\dfrac{(-1.5)(1.2)-(4.5)(0.4)}{30} =$

(A) −1.2
(B) −0.12
(C) 0
(D) 0.12
(E) 1.2

94. René earns $8.50 per hour on days other than Sundays and twice that rate on Sundays. Last week she worked a total of 40 hours, including 8 hours on Sunday. What were her earnings for the week?

(A) $272
(B) $340
(C) $398
(D) $408
(E) $476

95. In a shipment of 120 machine parts, 5 percent were defective. In a shipment of 80 machine parts, 10 percent were defective. For the two shipments combined, what percent of the machine parts were defective?

(A) 6.5%
(B) 7.0%
(C) 7.5%
(D) 8.0%
(E) 8.5%

96. If $8^{2x+3} = 2^{3x+6}$, then $x =$

(A) −3
(B) −1
(C) 0
(D) 1
(E) 3

97. Of the following, the closest approximation to $\sqrt{\dfrac{5.98(601.5)}{15.79}}$ is

(A) 5
(B) 15
(C) 20
(D) 25
(E) 225

98. Which of the following CANNOT be the greatest common divisor of two positive integers x and y?

(A) 1
(B) x
(C) y
(D) $x-y$
(E) $x+y$

99. If a, b, and c are nonzero numbers and $a+b=c$, which of the following is equal to 1 ?

(A) $\dfrac{a-b}{c}$
(B) $\dfrac{a-c}{b}$
(C) $\dfrac{b-c}{a}$
(D) $\dfrac{b-a}{c}$
(E) $\dfrac{c-b}{a}$

100. Last year Carlos saved 10 percent of his annual earnings. This year he earned 5 percent more than last year and he saved 12 percent of his annual earnings. The amount saved this year was what percent of the amount saved last year?

(A) 122%
(B) 124%
(C) 126%
(D) 128%
(E) 130%

101. A corporation that had $115.19 billion in profits for the year paid out $230.10 million in employee benefits. Approximately what percent of the profits were the employee benefits? (1 billion = 10^9)

(A) 50%
(B) 20%
(C) 5%
(D) 2%
(E) 0.2%

Questions 102–103 refer to the following definition.

For any positive integer n, $n > 1$, the "length" of n is the number of positive primes (not necessarily distinct) whose product is n. For example, the length of 50 is 3 since $50 = (2)(5)(5)$.

102. Which of the following integers has length 3?

(A) 3
(B) 15
(C) 60
(D) 64
(E) 105

103. What is the greatest possible length of a positive integer less than 1,000 ?

(A) 10
(B) 9
(C) 8
(D) 7
(E) 6

104. If $x + y = 8z$, then which of the following represents the average (arithmetic mean) of x, y, and z, in terms of z ?

(A) $2z + 1$
(B) $3z$
(C) $5z$
(D) $\frac{z}{3}$
(E) $\frac{3z}{2}$

105. On the number line, if $r < s$, if p is halfway between r and s, and if t is halfway between p and r, then $\frac{s-t}{t-r} =$

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{4}{3}$
(D) 3
(E) 4

106. If x and y are different integers and $x^2 = xy$, which of the following must be true?

I. $x = 0$
II. $y = 0$
III. $x = -y$

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II, and III

107. If $\frac{3}{x} = 2$ and $\frac{y}{4} = 3$, then $\frac{3+y}{x+4} =$

(A) $\frac{10}{9}$
(B) $\frac{3}{2}$
(C) $\frac{20}{11}$
(D) $\frac{30}{11}$
(E) 5

108. Which of the following fractions has the greatest value?

(A) $\frac{6}{(2^2)(5^2)}$
(B) $\frac{1}{(2^3)(5^2)}$
(C) $\frac{28}{(2^2)(5^3)}$
(D) $\frac{62}{(2^3)(5^3)}$
(E) $\frac{122}{(2^4)(5^3)}$

109. Which of the following CANNOT yield an integer when divided by 10?

(A) The sum of two odd integers
(B) An integer less than 10
(C) The product of two primes
(D) The sum of three consecutive integers
(E) An odd integer

110. A certain clock marks every hour by striking a number of times equal to the hour, and the time required for a stroke is exactly equal to the time interval between strokes. At 6:00 the time lapse between the beginning of the first stroke and the end of the last stroke is 22 seconds. At 12:00, how many seconds elapse between the beginning of the first stroke and the end of the last stroke?

(A) 72
(B) 50
(C) 48
(D) 46
(E) 44

111. If $k \neq 0$ and $k - \frac{3-2k^2}{k} = \frac{x}{k}$, then $x =$

(A) $-3-k^2$
(B) k^2-3
(C) $3k^2-3$
(D) $k-3-2k^2$
(E) $k-3+2k^2$

112. $\frac{\frac{1}{2}+\frac{1}{3}}{\frac{1}{4}} =$

(A) $\frac{1}{12}$
(B) $\frac{5}{24}$
(C) $\frac{2}{3}$
(D) $\frac{9}{4}$
(E) $\frac{10}{3}$

113. For all numbers s and t, the operation * is defined by $s * t = (s-1)(t+1)$. If $(-2) * x = -12$, then $x =$

(A) 2
(B) 3
(C) 5
(D) 6
(E) 11

114. Salesperson A's compensation for any week is \$360 plus 6 percent of the portion of A's total sales above \$1,000 for that week. Salesperson B's compensation for any week is 8 percent of B's total sales for that week. For what amount of total weekly sales would both salespeople earn the same compensation?

(A) \$21,000
(B) \$18,000
(C) \$15,000
(D) \$4,500
(E) \$4,000

115. The sum of the ages of Doris and Fred is y years. If Doris is 12 years older than Fred, how many years old will Fred be y years from now, in terms of y?

(A) $y-6$
(B) $2y-6$
(C) $\frac{y}{2}-6$
(D) $\frac{3y}{2}-6$
(E) $\frac{5y}{2}-6$

116. If a basketball team scores an average (arithmetic mean) of x points per game for n games and then scores y points in its next game, what is the team's average score for the $n+1$ games?

(A) $\frac{nx+y}{n+1}$
(B) $x+\frac{y}{n+1}$
(C) $x+\frac{y}{n}$
(D) $\frac{n(x+y)}{n+1}$
(E) $\frac{x+ny}{n+1}$

117. Of the following numbers, which one is third greatest?

(A) $2\sqrt{2}-1$
(B) $\sqrt{2}+1$
(C) $1-\sqrt{2}$
(D) $\sqrt{2}-1$
(E) $\sqrt{2}$

118. At a certain pizzeria, $\frac{1}{8}$ of the pizzas sold in one week were mushroom and $\frac{1}{3}$ of the remaining pizzas sold were pepperoni. If n of the pizzas sold were pepperoni, how many were mushroom?

(A) $\frac{3}{8}n$
(B) $\frac{3}{7}n$
(C) $\frac{7}{16}n$
(D) $\frac{7}{8}n$
(E) $3n$

119. Two trains, X and Y, started simultaneously from opposite ends of a 100-mile route and traveled toward each other on parallel tracks. Train X, traveling at a constant rate, completed the 100-mile trip in 5 hours; train Y, traveling at a constant rate, completed the 100 mile trip in 3 hours. How many miles had train X traveled when it met train Y?

(A) 37.5
(B) 40.0
(C) 60.0
(D) 62.5
(E) 77.5

120. One week a certain truck rental lot had a total of 20 trucks, all of which were on the lot Monday morning. If 50 percent of the trucks that were rented out during the week were returned to the lot on or before Saturday morning of that week, and if there were at least 12 trucks on the lot that Saturday morning, what is the greatest number of different trucks that could have been rented out during the week?

(A) 18
(B) 16
(C) 12
(D) 8
(E) 4

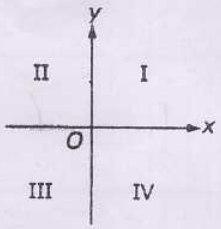
121. What is the value of $2x^2 - 2.4x - 1.7$ for $x = 0.7$?

(A) -0.72
(B) -1.42
(C) -1.98
(D) -2.40
(E) -2.89

122. If s, u, and v are positive integers and $2s = 2u + 2v$, which of the following must be true?

I. $s = u$
II. $u \neq v$
III. $s > v$

(A) None
(B) I only
(C) II only
(D) III only
(E) II and III



123. In the rectangular coordinate system shown above, which quadrant, if any, contains no point (x, y) that satisfies the inequality $2x - 3y \leq -6$?

(A) None
(B) I
(C) II
(D) III
(E) IV

124. The cost to rent a small bus for a trip is x dollars, which is to be shared equally among the people taking the trip. If 10 people take the trip rather than 16, how many more dollars, in terms of x, will it cost per person?

(A) $\frac{x}{6}$

(B) $\frac{x}{10}$

(C) $\frac{x}{16}$

(D) $\frac{3x}{40}$

(E) $\frac{3x}{80}$

125. If x is an integer and $y = 3x + 2$, which of the following CANNOT be a divisor of y?

(A) 4
(B) 5
(C) 6
(D) 7
(E) 8

126. A certain electronic component is sold in boxes of 54 for \$16.20 and in boxes of 27 for \$13.20. A customer who needed only 54 components for a project had to buy 2 boxes of 27 because boxes of 54 were unavailable. Approximately how much more did the customer pay for each component due to the unavailability of the larger boxes?

(A) \$0.33
(B) \$0.19
(C) \$0.11
(D) \$0.06
(E) \$0.03

127. As a salesperson, Phyllis can choose one of two methods of annual payment: either an annual salary of \$35,000 with no commission or an annual salary of \$10,000 plus a 20 percent commission on her total annual sales. What must her total annual sales be to give her the same annual pay with either method?

(A) \$100,000
(B) \$120,000
(C) \$125,000
(D) \$130,000
(E) \$132,000

128. If $\frac{x+y}{xy} = 1$, then $y =$

(A) $\frac{x}{x-1}$

(B) $\frac{x}{x+1}$

(C) $\frac{x-1}{x}$

(D) $\frac{x+1}{x}$

(E) x

129. Last year Department Store X had a sales total for December that was 4 times the average (arithmetic mean) of the monthly sales totals for January through November. The sales total for December was what fraction of the sales total for the year?

(A) $\frac{1}{4}$

(B) $\frac{4}{15}$

(C) $\frac{1}{3}$

(D) $\frac{4}{11}$

(E) $\frac{4}{5}$

130. Working alone, printers X, Y, and Z can do a certain printing job, consisting of a large number of pages, in 12, 15, and 18 hours, respectively. What is the ratio of the time it takes printer X to do the job, working alone at its rate, to the time it takes printers Y and Z to do the job, working together at their individual rates?

(A) $\frac{4}{11}$

(B) $\frac{1}{2}$

(C) $\frac{15}{22}$

(D) $\frac{22}{15}$

(E) $\frac{11}{4}$

131. A rabbit on a controlled diet is fed daily 300 grams of a mixture of two foods, food X and food Y. Food X contains 10 percent protein and food Y contains 15 percent protein. If the rabbit's diet provides exactly 38 grams of protein daily, how many grams of food X are in the mixture?

(A) 100
(B) 140
(C) 150
(D) 160
(E) 200

132. A company that ships boxes to a total of 12 distribution centers uses color coding to identify each center. If either a single color or a pair of two different colors is chosen to represent each center and if each center is uniquely represented by that choice of one or two colors, what is the minimum number of colors needed for the coding? (Assume that the order of the colors in a pair does not matter.)

(A) 4
(B) 5
(C) 6
(D) 12
(E) 24

133. If $x \neq 2$, then $\frac{3x^2(x-2)-x+2}{x-2} =$

(A) $3x^2 - x + 2$
(B) $3x^2 + 1$
(C) $3x^2$
(D) $3x^2 - 1$
(E) $3x^2 - 2$

134. If $d > 0$ and $0 < 1 - \frac{c}{d} < 1$, which of the following must be true?

I. $c > 0$

II. $\frac{c}{d} < 1$

III. $c^2 + d^2 > 1$

(A) I only
(B) II only
(C) I and II only
(D) II and III only
(E) I, II, and III

135. $\frac{\frac{1}{2}}{\frac{1}{4}+\frac{1}{6}} =$

(A) $\frac{6}{5}$

(B) $\frac{5}{6}$

(C) $\frac{5}{24}$

(D) $\frac{1}{5}$

(E) $\frac{1}{12}$

136. A train travels from New York City to Chicago, a distance of approximately 840 miles, at an average rate of 60 miles per hour and arrives in Chicago at 6:00 in the evening, Chicago time. At what hour in the morning, New York City time, did the train depart for Chicago? (Note: Chicago time is one hour earlier than New York City time.)

(A) 4:00
(B) 5:00
(C) 6:00
(D) 7:00
(E) 8:00

137. Last year Manfred received 26 paychecks. Each of his first 6 paychecks was \$750; each of his remaining paychecks was \$30 more than each of his first 6 paychecks. To the nearest dollar, what was the average (arithmetic mean) amount of his paychecks for the year?

(A) \$752
(B) \$755
(C) \$765
(D) \$773
(E) \$775

138. If 25 percent of p is equal to 10 percent of q, and $pq \neq 0$, then p is what percent of q?

(A) 2.5%
(B) 15%
(C) 20%
(D) 35%
(E) 40%

139. If the length of an edge of cube X is twice the length of an edge of cube Y, what is the ratio of the volume of cube Y to the volume of cube X?

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) $\frac{1}{6}$
(D) $\frac{1}{8}$
(E) $\frac{1}{27}$

140. Machines A and B always operate independently and at their respective constant rates. When working alone, machine A can fill a production lot in 5 hours, and machine B can fill the same lot in x hours. When the two machines operate simultaneously to fill the production lot, it takes them 2 hours to complete the job. What is the value of x?

(A) $3\frac{1}{3}$
(B) 3
(C) $2\frac{1}{2}$
(D) $2\frac{1}{3}$
(E) $1\frac{1}{2}$

141. An artist wishes to paint a circular region on a square poster that is 2 feet on a side. If the area of the circular region is to be $\frac{1}{2}$ the area of the poster, what must be the radius of the circular region in feet?

(A) $\frac{1}{\pi}$
(B) $\sqrt{\frac{2}{\pi}}$
(C) 1
(D) $\frac{2}{\sqrt{\pi}}$
(E) $\frac{\pi}{2}$

142. If a is a positive integer, and if the units' digit of a^2 is 9 and the units' digit of $(a+1)^2$ is 4, what is the units' digit of $(a+2)^2$?

(A) 1
(B) 3
(C) 5
(D) 6
(E) 14

143. A \$500 investment and a \$1,500 investment have a combined yearly return of 8.5 percent of the total of the two investments. If the \$500 investment has a yearly return of 7 percent, what percent yearly return does the \$1,500 investment have?

(A) 9%
(B) 10%
(C) $10\frac{5}{8}\%$
(D) 11%
(E) 12%

144. For any integer n greater than 1, $\lfloor n$ denotes the product of all the integers from 1 to n, inclusive. How many prime numbers are there between $\lfloor 6 + 2$ and $\lfloor 6 + 6$, inclusive?

(A) None
(B) One
(C) Two
(D) Three
(E) Four

145. If $\left(7^{\frac{3}{4}}\right)^{n} = 7$, what is the value of n ?

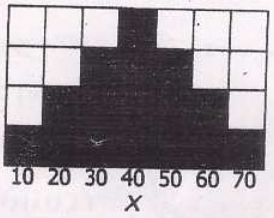
(A) $\frac{1}{3}$
(B) $\frac{2}{3}$
(C) $\frac{4}{3}$
(D) $\frac{5}{3}$
(E) s

146. Which of the following is equal to the average (arithmetic mean) of $(x + 2)^2$ and $(x - 2)^2$?

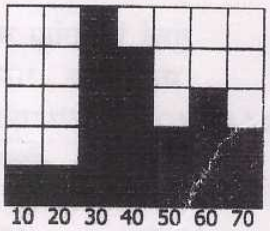
(A) x^2
(B) $x^2 + 2$
(C) $x^2 + 4$
(D) $x^2 + 2x$
(E) $x^2 + 4x$

147. If $x^4 + y^4 = 100$ then the greatest possible value of x is between

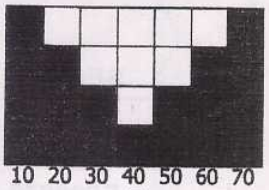
(A) 0 and 3
(B) 3 and 6
(C) 6 and 9
(D) 9 and 12
(E) 12 and 15



X



Y



Z

148. If the variables, X, Y, and Z take on only the values 10, 20, 30, 40, 50, 60, or 70 with frequencies indicated by the shaded regions above, for which of the frequency distributions is the mean equal to the median?

(A) X only
(B) Y only
(C) Z only
(D) X and Y
(E) X and Z

149. For how many integers n is $2^n = n^2$?

(A) None
(B) One
(C) Two
(D) Three
(E) More than three

150. If r and s are integers and $rs + r$ is odd, which of the following must be even?

(A) r
(B) s
(C) $r + s$
(D) $rs - r$
(E) $r^2 + s$

151. A box contains 100 balls, numbered from 1 to 100. If three balls are selected at random and with replacement from the box, what is the probability that the sum of the three numbers on the balls selected from the box will be odd?

(A) $\frac{1}{4}$

(B) $\frac{3}{8}$

(C) $\frac{1}{2}$

(D) $\frac{5}{8}$

(E) $\frac{3}{4}$

152. If $0 < x < 1$, which of the following inequalities must be true?

I. $x^5 < x^3$

II. $x^4 + x^5 < x^3 + x^2$

III. $x^4 - x^5 < x^2 - x^3$

(A) None
(B) I only
(C) II only
(D) I and II only
(E) I, II, and III

153. If $(2^x)(2^y) = 8$ and $(9^x)(3^y) = 81$, then $(x, y) =$

(A) (1, 2)
(B) (2, 1)
(C) (1, 1)
(D) (2, 2)
(E) (1, 3)

154. If $a = 1$ and $\frac{a-b}{c} = 1$, which of the following is NOT a possible value of b?

(A) −2
(B) −1
(C) 0
(D) 1
(E) 2

155. If $\frac{x}{y} = \frac{2}{3}$, then $\frac{x-y}{x} =$

(A) $-\frac{1}{2}$

(B) $-\frac{1}{3}$

(C) $\frac{1}{3}$

(D) $\frac{1}{2}$

(E) $\frac{5}{2}$

156. The contents of a certain box consist of 14 apples and 23 oranges. How many oranges must be removed from the box so that 70 percent of the pieces of fruit in the box will be apples?

(A) 3
(B) 6
(C) 14
(D) 17
(E) 20

157. Last year, a certain public transportation system sold an average (arithmetic mean) of 41,000 tickets per day on weekdays (Monday through Friday) and an average of 18,000 tickets per day on Saturday and Sunday. Which of the following is closest to the total number of tickets sold last year?

(A) 1 million
(B) 1.25 million
(C) 10 million
(D) 12.5 million
(E) 125 million

District	Number of Votes	Percent of Votes for Candidate P	Percent of Votes for Candidate Q
1	800	60	40
2	1,000	50	50
3	1,500	50	50
4	1,800	40	60
5	1,200	30	70

158. The table above shows the results of a recent school board election in which the candidate with the higher total number of votes from the five districts was declared the winner. Which district had the greatest number of votes for the winner?

(A) 1
(B) 2
(C) 3
(D) 4
(E) 5

159. A group of store managers must assemble 280 displays for an upcoming sale. If they assemble 25 percent of the displays during the first hour and 40 percent of the remaining displays during the second hour, how many of the displays will not have been assembled by the end of the second hour?

(A) 70
(B) 98
(C) 126
(D) 168
(E) 182

1	2	3	4	5	6	7
-2	-4	-6	-8	-10	-12	-14
3	6	9	12	15	18	21
-4	-8	-12	-16	-20	-24	-28
5	10	15	20	25	30	35
-6	-12	-18	-24	-30	-36	-42
7	14	21	28	35	42	49

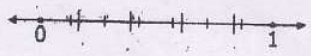
160. What is the sum of the integers in the table above?

(A) 28
(B) 112
(C) 336
(D) 448
(E) 784

3, k, 2, 8, m, 3

161. The arithmetic mean of the list of numbers above is 4. If k and m are integers and $k \neq m$, what is the median of the list?

(A) 2
(B) 2.5
(C) 3
(D) 3.5
(E) 4



162. On the number line above, the segment from 0 to 1 has been divided into fifths, as indicated by the large tick marks, and also into sevenths, as indicated by the small tick marks. What is the least possible distance between any two of the tick marks?

(A) $\frac{1}{70}$
(B) $\frac{1}{35}$
(C) $\frac{2}{35}$
(D) $\frac{1}{12}$
(E) $\frac{1}{7}$

163. $\frac{(8^2)(3^3)(2^4)}{96^2} =$

(A) 3
(B) 6
(C) 2
(D) 12
(E) 18

164. When 10 is divided by the positive integer n, the remainder is $n - 4$. Which of the following could be the value of n?

(A) 3
(B) 4
(C) 7
(D) 8
(E) 12

105

165. If $\frac{1}{2}$ of the money in a certain trust fund was invested in stocks, $\frac{1}{4}$ in bonds, $\frac{1}{5}$ in a mutual fund, and the remaining $10,000 in a government certificate, what was the total amount of the trust fund?

(A) $100,000
(B) $150,000
(C) $200,000
(D) $500,000
(E) $2,000,000

166. If m is an integer such that $(-2)^{2m} = 2^{9-m}$, then $m =$

(A) 1
(B) 2
(C) 3
(D) 4
(E) 6

167. In a mayoral election, Candidate X received $\frac{1}{3}$ more votes than Candidate Y, and Candidate Y received $\frac{1}{4}$ fewer votes than Candidate Z. If Candidate Z received 24,000 votes, how many votes did Candidate X receive?

(A) 18,000
(B) 22,000
(C) 24,000
(D) 26,000
(E) 32,000

168. An airline passenger is planning a trip that involves three connecting flights that leave from Airports A, B, and C, respectively. The first flight leaves Airport A every hour, beginning at 8:00 a.m., and arrives at Airport B $2\frac{1}{2}$ hours later. The second flight leaves Airport B every 20 minutes, beginning at 8:00 a.m., and arrives at Airport C $1\frac{1}{6}$ hours later. The third flight leaves Airport C every hour, beginning at 8:45 a.m. What is the least total amount of time the passenger must spend between flights if all flights keep to their schedules?

(A) 25 min
(B) 1 hr 5 min
(C) 1 hr 15 min
(D) 2 hr 20 min
(E) 3 hr 40 min

169. If n is a positive integer and n^2 is divisible by 72, then the largest positive integer that must divide n is

(A) 6
(B) 12
(C) 24
(D) 36
(E) 48

170. If n is a positive integer and $k + 2 = 3^n$, which of the following could NOT be a value of k?

(A) 1
(B) 4
(C) 7
(D) 25
(E) 79

171. A certain grocery purchased x pounds of produce for p dollars per pound. If y pounds of the produce had to be discarded due to spoilage and the grocery sold the rest for s dollars per pound, which of the following represents the gross profit on the sale of the produce?

(A) $(x - y)\, s - xp$
(B) $(x - y)\, p - ys$
(C) $(s - p)\, y - xp$
(D) $xp - ys$
(E) $(x - y)\, (s - p)$

172. If x, y, and z are positive integers such that x is a factor of y, and x is a multiple of z, which of the following is NOT necessarily an integer?

(A) $\frac{x + z}{z}$
(B) $\frac{y + z}{x}$
(C) $\frac{x + y}{z}$

(D) $\frac{xy}{z}$

(E) $\frac{yz}{x}$

173. If $\frac{a}{b} = \frac{2}{3}$, which of the following is NOT true?

(A) $\frac{a+b}{b} = \frac{5}{3}$

(B) $\frac{b}{b-a} = 3$

(C) $\frac{a-b}{b} = \frac{1}{3}$

(D) $\frac{2a}{3b} = \frac{4}{9}$

(E) $\frac{a+3b}{a} = \frac{11}{2}$

$$\begin{array}{r} \square\triangle \\ \times\ \triangle\square \\ \hline \end{array}$$

174. The product of the two-digit numbers above is the three-digit number $\square\diamond\square$, where $\square$, $\triangle$, and $\diamond$, are three different nonzero digits. If $\square \times \triangle < 10$, what is the two-digit number $\square\triangle$?

(A) 11
(B) 12
(C) 13
(D) 21
(E) 31

175. A square countertop has a square tile inlay in the center, leaving an untiled strip of uniform width around the tile. If the ratio of the tiled area to the untiled area is 25 to 39, which of the following could be the width, in inches, of the strip?

I. 1
II. 3
III. 4

(A) I only
(B) II only
(C) I and II only
(D) I and III only
(E) I, II, and III

176. $\frac{2\frac{3}{5} - 1\frac{2}{3}}{\frac{2}{3} - \frac{3}{5}} =$

(A) 16
(B) 14
(C) 3
(D) 1
(E) −1

1. C
2. E
3. C
4. C
5. D
6. B
7. D
8. D
9. B
10. D
11. B
12. C
13. E
14. B
15. D
16. B
17. A
18. A
19. D
20. C
21. E
22. D
23. E
24. E
25. E
26. C
27. C
28. B
29. A
30. B
31. C
32. C
33. C
34. A
35. A
36. C
37. A
38. D
39. D
40. E
41. C
42. E
43. C
44. C
45. B
46. E
47. D
48. C
49. C
50. E
51. C
52. A
53. B
54. A
55. C
56. A
57. D
58. C
59. A
60. C
61. D
62. C
63. A
64. C
65. C
66. D
67. E
68. C
69. E
70. A
71. C
72. E
73. C
74. B
75. C
76. B
77. B
78. E
79. B
80. D
81. B
82. B
83. E
84. E
85. B
86. D
87. C
88. B
89. E
90. E
91. A
92. D
93. B
94. D
95. B
96. B
97. B
98. E
99. E
100. C
101. E
102. E
103. B
104. B
105. D
106. A
107. D
108. D
109. E
110. D
111. C
112. E
113. B
114. C
115. D
116. A
117. E
118. B
119. A
120. B
121. D
122. D
123. E
124. E
125. C
126. B
127. C
128. A
129. B
130. D
131. B
132. B
133. D
134. C
135. A
136. B
137. D
138. E
139. D
140. A
141. B
142. A
143. A
144. A
145. C
146. C
147. B
148. E
149. C
150. B
151. C
152. E
153. A
154. D
155. A
156. D
157. D
158. D
159. C
160. B
161. C
162. B
163. A
164. C
165. C
166. C
167. C
168. B
169. B
170. B
171. A
172. B
173. C
174. D
175. E
176. B