Practice Set 5

1. What is the smallest positive integer that is evenly divisible by both 21 and 9?

   (A) 189
   (B) 126
   (C) 63
   (D) 42
   (E) 21

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2. If f people each contribute g dollars to a gift fund, the total amount contributed by all the people, in dollars, is

   (A) $f - g$
   (B) $f + g$
   (C) fg
   (D) $f \div g$
   (E) $g - f$

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3. If $\frac{3}{11} + \frac{3}{11} + \frac{3}{11} = \frac{x}{33}$, what is the value of $\frac{x}{3}$?

   (A) 27
   (B) 9
   (C) 6
   (D) 3
   (E) 1

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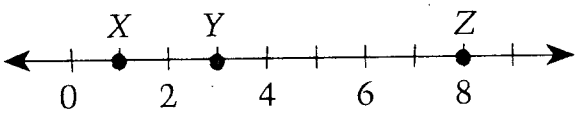
4. In a group of 25 students, 16 are female. What percent of the group is female?

   (A) 16%
   (B) 40%
   (C) 60%
   (D) 64%
   (E) 75%

5.



On the number line shown above, the length of YZ is how much greater than the length of XY?

(A) 3
(B) 4
(C) 5
(D) 6
(E) 7

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6. The first term of a certain sequence is 5. If every term after the first term is 3 less than 2 times the term immediately preceding it, what is the difference between the third and fourth terms?

(A) 8
(B) 11
(C) 16
(D) 19
(E) 32

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7. A certain jar contains blue, black, and red marbles in the ratio of 2:5:7 respectively. If there are 30 blue marbles in the jar, how many red marbles does the jar contain?

(A) 15
(B) 30
(C) 45
(D) 75
(E) 105

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8. When x is divided by 5, the remainder is 4. When x is divided by 9, the remainder is 0. Which of the following is a possible value for x?

(A) 24
(B) 45
(C) 59
(D) 109
(E) 144

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9. What percent of 4 is $\frac{2}{3}$ of 8?

(A) 25%
(B) $66\frac{2}{3}\%$
(C) 120%
(D) $133\frac{1}{3}\%$
(E) 150%

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10. A radioactive chemical decays 20 percent each day. If 48 pounds of this chemical remain today, how many pounds of this chemical were present two days ago?

(A) 75
(B) 72
(C) 70
(D) 66
(E) 60

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11. How many distinct prime factors does the number 36 have?

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

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12. If x is the largest of 3 consecutive integers, what is the sum of the three integers?

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

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13. If $x \wedge y$ is defined by the expression $(x - y)^x + (x + y)^y$, what is the value of $4 \wedge 2$?

(A) 52
(B) 44
(C) 28
(D) 20
(E) 16

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14. The set S contains 3 nonzero numbers represented by a^2, a^3, a^4. Set T contains 3 nonzero numbers represented by b^2, b^3, b^4. The ratio of the product of the numbers in set S to the product of the numbers in set T is

(A) $\frac{a}{b}$
(B) $\frac{a^9}{b^9}$
(C) $\frac{a^{12}}{b^{12}}$
(D) $\frac{a^{24}}{b^{24}}$
(E) $\frac{a^{36}}{b^{36}}$

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15. If an integer is randomly chosen from the first 50 positive integers, what is the probability that an integer with a digit of 3 is selected?

(A) $\frac{7}{25}$
(B) $\frac{3}{10}$
(C) $\frac{8}{25}$
(D) $\frac{2}{5}$
(E) $\frac{3}{5}$

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16. If John paid \$43.40 for a new phone and this price included an 8.5% sales tax, how much tax was paid?

(A) \$3.23
(B) \$3.40
(C) \$3.69
(D) \$40.00
(E) \$40.90

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17. If an integer is divisible by 6 and by 9, then the integer must be divisible by which of the following?

I. 12
II. 18
III. 36

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

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18. Doughnuts sell for $0.50 each, but can be purchased for $5.04 per dozen. How much is saved per doughnut if they are purchased by the dozen rather than individually?

(A) $0.96
(B) $0.48
(C) $0.36
(D) $0.12
(E) $0.08

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19. The ratio of x to y to z is 3 to 6 to 8. If $y = 24$, what is the value of $x+z$?

(A) 11
(B) 33
(C) 44
(D) 66
(E) 88

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20. Aaron gives one-half of his money to Bob, and one-fourth of his remaining money to Cathy. If Aaron is left with $12, with how much money did he begin?

(A) 26
(B) 30
(C) 32
(D) 40
(E) 96

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21. A drawer contains 6 blue socks, 12 black socks, and 14 white socks. If one sock is chosen at random, what is the probability that it will be black?

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{3}{8}$
(D) $\frac{1}{2}$
(E) $\frac{5}{8}$

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22. One gross (12 dozen) of soda cans can be purchased for G dollars. In terms of G, how much does one soda can cost?

(A) $\frac{12}{G}$
(B) $\frac{144}{G}$
(C) $\frac{G}{12}$
(D) $\frac{G}{144}$
(E) $12G$

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23. If six students are eligible for 2 scholarships worth $1,000 each how many different combinations of 2 students winning the 2 scholarships are possible?

(A) 6
(B) 9
(C) 12
(D) 15
(E) 30

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24. A team of two is to be chosen from among Al, Bob, Carl, Dave, and Earl. What is the probability that Dave and Earl will be on this team?

(A) $\frac{1}{8}$
(B) $\frac{1}{10}$
(C) $\frac{1}{12}$
(D) $\frac{1}{20}$
(E) $\frac{1}{24}$

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25. There are 3 routes from Bay City to Riverville. There are 4 routes from Riverville to Straitstown. There are 3 routes from Straitstown to Frog Pond. If a driver must pass through Riverville and Straitstown exactly once, how many possible ways are there to go from Bay City to Frog Pond?

(A) 6
(B) 10
(C) 12
(D) 24
(E) 36
