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Online Homework

Focused Exercises for Math SAT

Skill Set 1: Word Problems

Many of the problems in this exercise set came from The College Board, writers of the SAT exam.

1. If 4 less than 3 times a certain number is 2 more than the number, what is the number?
 - (A) -1
 - (B) -3
 - (C) 1
 - (D) 2
 - (E) 3

2. Esther drove to work in the morning at an average speed of 45 miles per hour. She returned home in the evening along the same route and averaged 30 miles per hour. If Esther spent a total of one hour commuting to and from work, how many miles did Esther drive to work in the morning?

3. When the number w is multiplied by 4, the result is the same as when 4 is added to w . What is the value of $3w$?
 - (A) $\frac{3}{4}$
 - (B) 1
 - (C) $\frac{4}{3}$
 - (D) 3
 - (E) 4

4. A family of 5 is planning a 4-day camping trip. Each person will need to bring 1 bottle of water for each day of the trip. If the water is sold only in 3-bottle packages, how many packages must the family buy for the trip?

5. After Jean gave \$10 to Irene and Irene gave \$6 to Todd, Jean had \$10 more than Irene and \$20 more than Todd. Originally, how much more did Jean have than Irene and Todd?
 - (A) \$14 more than Irene and \$16 more than Todd
 - (B) \$18 more than Irene and \$24 more than Todd
 - (C) \$18 more than Irene and \$26 more than Todd
 - (D) \$24 more than Irene and \$26 more than Todd
 - (E) \$24 more than Irene and \$36 more than Todd

6. How old was a person exactly 1 year ago if exactly x years ago the person was y years old?
- (A) $y - 1$
(B) $y - x - 1$
(C) $x - y - 1$
(D) $y + x + 1$
(E) $y + x - 1$
7. When it is noon Eastern Standard Time (EST) in New York City, it is 9:00 A.M. Pacific Standard Time (PST) in San Francisco. A plane took off from New York City at noon EST and arrived in San Francisco at 4:00 P.M. PST on the same day. If a second plane left San Francisco at noon PST and took exactly the same amount of time for the trip, what was the plane's arrival time (EST) in New York City?
- (A) 10:00 P.M. EST
(B) 9:00 P.M. EST
(C) 7:00 P.M. EST
(D) 6:00 P.M. EST
(E) 4:00 P.M. EST
8. A school ordered \$600 worth of lightbulbs. Some of the light bulbs cost \$1 each and the others cost \$2 each. If twice as many \$1 bulbs as \$2 bulbs were ordered, how many lightbulbs were ordered altogether?
9. The sum of $3a$ and the square root of b is equal to the square of the sum of a and b .

Which of the following is an expression for the statement above?

- (A) $3a + b^2 = \sqrt{a + b}$
(B) $3a + \sqrt{b} = (a + b)^2$
(C) $3a + \sqrt{b} = a^2 + b^2$
(D) $\sqrt{3a + b} = a^2 + b^2$
(E) $\sqrt{3a} + \sqrt{b} = (a + b)^2$

10. Kerry has a cordless telephone receiver that can operate within a range of 1,000 feet from the telephone's base. Kerry takes the receiver from the base and walks 800 feet due north. From that point she walks due east and stops at the maximum range of the receiver. In which of the following directions can Kerry walk and still be within the range of the receiver?

- I. Due north
- II. Due south
- III. Due west

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

11. The sum of two numbers that differ by 1 is t . In terms of t , what is the value of the greater of the two numbers?

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

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

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

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

(E) $\frac{2t-1}{2}$

12. When twice a number s decreased by 3, the result is 253. What is the number?

13. Bobby receives \$2 for each chore he does during the week, plus a weekly allowance of \$10. If Bobby receives no other money, which of the following expressions represents the total dollar amount Bobby receives for a week in which he has done n chores?

- (A) $10 + n$
- (B) $(10 + 2)n$
- (C) $10n + 2$
- (D) $10 + 2n$
- (E) $(10 + n)2$

14. Kyle's lock combination consists of 3 two-digit numbers. The combination satisfies the three conditions below.

- One number is odd.
- One number is a multiple of 5.
- One number is the day of the month of Kyle's birthday.

If each number satisfies exactly one of the conditions, which of the following could be the combination to the lock?

- (A) 14-20-13
(B) 14-25-13
(C) 15-18-16
(D) 20-15-20
(E) 34-30-21
15. A number n is increased by 5 and the result is multiplied by 5. This result is decreased by 5. Finally, that result is divided by 5. In terms of n , what is the final result?
- (A) $n - 5$
(B) $n - 1$
(C) n
(D) $n + 4$
(E) $5(n + 5)$
16. Phillip used four pieces of masking tape, each 6 inches long, to put up each of his posters. Phillip had a 300-foot roll of masking tape when he started. If no tape was wasted, which of the following represents the number of feet of masking tape that was left on the roll after he put up n posters? (12 inches = 1 foot)
- (A) $300 - 6n$
(B) $300 - 2n$
(C) $300 - n$
(D) $300 - \frac{1}{2}n$
(E) $300 - \frac{1}{4}n$

17. A certain scale only registers weights that are greater than 6 pounds. A person who wanted to know the weights of a puppy, a kitten, and a bunny weighed them in pairs and got the following results:

The kitten and the bunny weighed 7 pounds.

The kitten and the puppy weighed 8 pounds.

The bunny and the puppy weighed 9 pounds.

What is the weight of the puppy?

- (A) 2 pounds
(B) 3 pounds
(C) 4 pounds
(D) 5 pounds
(E) 6 pounds
18. The Smith Metal Company's old machine makes 300 bolts per hour. Its new machine makes 450 bolts per hour. If both machines begin running at the same time, how many minutes will it take the two machines to make a total of 900 bolts?
- (A) 36
(B) 72
(C) 120
(D) 144
(E) 180
19. The scenic route from Mia's home to her office is 5 kilometers longer than the direct route. When she goes by the scenic route and returns by the direct route, the round trip is 35 kilometers. How many kilometers is the direct route?
- (A) 5
(B) $12\frac{1}{2}$
(C) 15
(D) 20
(E) $22\frac{1}{2}$
20. If the product of 0.3 and a number is equal to 1, what is the number?

21. A company sells boxes of balloons in which the balloons are red, green, or blue. Luann purchased a box of balloons in which one third of them were red. If there were half as many green balloons in the box as red ones and 18 balloons were blue, how many balloons were in the box?
22. If all men in the Williams family are over six feet tall, which of the following statements must be true?
- (A) No man under six feet tall is a member of the Williams family.
 - (B) All men over six feet tall are members of the Williams family.
 - (C) All men who are not members of the Williams family are under six feet tall.
 - (D) Every member of the Williams family over 6 feet tall is a man.
 - (E) There is one man in the Williams family under six feet tall.
23. If 3 more than n is a negative number and if 5 more than n is a positive number, which of the following could be the value of n ?
- (A) -5
 - (B) -4
 - (C) -3
 - (D) 0
 - (E) 4
24. The total cost of 3 equally priced mechanical pencils is \$4.50. If the cost per pencil is increased by \$0.50, how much will 5 of these pencils cost at the new rate?
- (A) \$7.50
 - (B) \$8.00
 - (C) \$9.00
 - (D) \$9.50
 - (E) \$10.00
25. Car A traveled 60 miles and averaged 20 miles per gallon of gasoline. If car B traveled 15 miles for each gallon of gasoline it used, how many miles had car B traveled when it had used the same amount of gasoline that car A used to travel 60 miles?
26. In a mixture of peanuts and cashews, the ratio by weight of peanuts to cashews is 5 to 2. How many pounds of cashews will there be in 4 pounds of this mixture?

27. The Martins' refrigerator is broken and it will cost \$300 to fix it. A new energy-efficient refrigerator, costing \$900, will save the Martins \$15 per month on their electric bill. If they buy the new refrigerator, in x months the Martins will have saved an amount equal to the difference between the cost of the new refrigerator and the cost of fixing the old one. What is the value of x ?

- (A) 20
- (B) 25
- (C) 36
- (D) 40
- (E) 60

28.

The sum of $3x$ and 5 is equal to the product of x and $\frac{1}{3}$.

Which of the following equations gives the relationship stated in the problem above?

- (A) $3x = \frac{1}{3}x + 5$
- (B) $5(3x) = x + \frac{1}{3}$
- (C) $3(x + 5) = \frac{1}{3}x$
- (D) $3x + 5 = x \div \frac{1}{3}$
- (E) $3x + 5 = \frac{1}{3}x$

29. What number decreased by 6 equals 3 times the number?
- (A) -3
- (B) -1
- (C) $-\frac{2}{3}$
- (D) $\frac{2}{3}$
- (E) 3
30. The distance from Town A to Town B is 5 miles and the distance from Town B to Town C is 4 miles. Which of the following could NOT be the distance, in miles, from Town A to Town C?
- (A) 1
- (B) 4
- (C) 8
- (D) 9
- (E) 10
31. The total weight of Bill and his son Tommy is 250 pounds. If Bill's weight is 10 pounds more than 3 times Tommy's, what is Tommy's weight in pounds?
- (A) 40
- (B) 50
- (C) 60
- (D) 80
- (E) 90
32. If the sum of two numbers is 2 and their difference is 1, what is their product?
33. Hakim and Chris began running a 50-yard race at the same time. When Hakim finished the race, Chris was 4 yards behind him. If Hakim ran the race in 7 seconds, what was the difference in their rates in yards per second for those 7 seconds?

34. A piece of wire x feet in length is cut into exactly 6 pieces, each 2 feet 4 inches in length. What is the value of x ? (1 foot = 12 inches)
- (A) $12\frac{1}{3}$
- (B) $12\frac{1}{2}$
- (C) 13
- (D) $13\frac{1}{2}$
- (E) 14
35. From 1 p.m. to 5 p.m. on Monday, a group of photographers will be taking individual pictures of 600 students. If it takes 2 minutes to take each student's picture, how many photographers are needed?
- (A) Two
- (B) Three
- (C) Four
- (D) Five
- (E) Fifteen
36. Yesterday Art earned \$10.00 less than Bill, and today Art earned \$7.50 more than Bill. Which of the following must be true about Art's total earnings for the two days compared Bill's?
- (A) Art earned $\frac{3}{4}$ of what Bill earned.
- (B) Art earned \$17.50 more than Bill.
- (C) Art earned \$2.50 more than Bill.
- (D) Art earned \$2.50 less than Bill.
- (E) Art earned \$17.50 less than Bill.

37. A certain college offers students two monthly options for local telephone service.

Option A: Unlimited number of local calls for \$20.00 per month.

Option B: Basic charge of \$15.00 per month plus \$0.10 charge for each local call.

What is the least number of local calls in a month for which option A is less expensive than option B?

- (A) 5
(B) 15
(C) 49
(D) 50
(E) 51
38. Sally buys a pen and a pencil for \$1.45. If the pen costs \$0.25 more than the pencil, how much does the pencil cost?
- (A) \$0.25
(B) \$0.45
(C) \$0.60
(D) \$0.85
(E) \$1.20
39. It takes Mia 5 hours, reading at a constant rate, to read a certain book containing 200 pages of reading material. If Samantha reads at twice this rate, how many minutes would it take her to read a book containing 100 pages of reading material?
- (A) 75
(B) 85
(C) 90
(D) 120
(E) 150
40. If a pound of grass seed covers an area of 500 square feet and costs \$3.25, what is the cost, in dollars, of the seed needed to cover a level rectangular area that measures 200 feet by 300 feet?