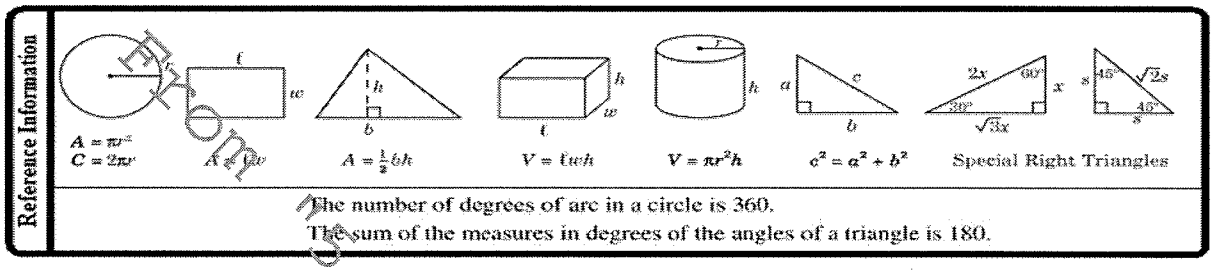
SAT MATH PRACTICE TEST 1

Time-25 Minutes
20 Questions



1. If the median of a set of five consecutive integers is equal to 13, then what is the value of the largest of these five integers?

(A) 11
(B) 13
(C) 15
(D) 17
(E) 19

2. If $x + 4x - 3x + 1 = 3$, then what is the value of x?

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

3. If the probability of selecting a red marble is $1/3$ and the probability of selecting a blue marble is $2/3$, what is the ratio of blue marbles to red marbles?

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

4. What is the value of the sum of the external angles of a triangle subtracted from the sum of the external angles of a pentagon?

(A) 0
(B) 30
(C) 90
(D) 180
(E) 360

5. The ratio of a rectangle's length to the length of a square's side is 3:1. If the area of the square is 36, and the rectangle's width is 2, what is the area of the rectangle?

(A) 24
(B) 36
(C) 72
(D) 108
(E) 216

6. Given that $|m - 2| = 7$ and $|n - 3| = 6$, where $m < 0$ and $n < 0$, what is the value of mn?

(A) 6
(B) 15
(C) 21
(D) 42
(E) 81

7. The average of a, b, and c is 27. If the value of d is 19, what is the average of a, b, c, and d?

(A) 7
(B) 11
(C) 25
(D) 28
(E) 46

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8. If $\frac{a}{b} = 4$ and $b = 15$, then what is the value of $5ab$?

(A) 30
(B) 60
(C) 300
(D) 900
(E) 4500

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9. Nancy can make 5 bags per hour. Sue can make 6 bags per hour, and Ned can make 12 bags per hour. If Nancy and Sue make bags together for one hour, and then Ned joins them, how many minutes will it take them to make 126 bags?

(A) 60
(B) 115
(C) 227
(D) 300
(E) 360

10. A store determines the retail price of a DVD player by marking up its wholesale price by 60 percent. After a 25 percent discount off the DVD player's retail price, the DVD player costs $162. What is the wholesale price of the DVD player?

(A) 54
(B) 81
(C) 135
(D) 216
(E) 324

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11. If $|-3x| + 4y^{-1} = 6z + 4x$, what is the value of x in terms of y and z?

(A) $(y/4) - 6z$
(B) $(4/y) - 6z$
(C) $4 - (6z/y)$
(D) $(4/7y) + (6z/7)$
(E) $(7/4y) + 6z$

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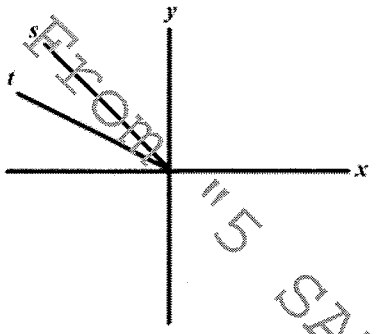
12. If a segment with a slope of two passes through points (2, 6) and (-2, $-y$), what is the value of y^2?

(A) 0
(B) 2
(C) 4
(D) 8
(E) 16

13.



In the figure above, ray s begins at the origin and passes through point (-3, 2). Which of the following is not a possible value of the slope of line t?

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

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14. Bob buys s socks from the store each week. If each sock costs c cents, and he buys the same number of socks each day, what equation shows how many cents Bob spends on socks per day in terms of s and c?

(A) sc
(B) $sc(s-7)$
(C) $sc-7$
(D) $(sc)/7$
(E) $7/(sc)$

15. m, n, and p are three consecutive positive odd integers such that $m < n < p$. If their sum is 45, what is the value of mp?

(A) 30
(B) 90
(C) 195
(D) 221
(E) 224

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16. If $a = \frac{2b}{3c^2}$ and $b = 24$, then what is the value of c in terms of a?

(A) $4/a$
(B) $a^{2/16}$
(C) $\pm(\sqrt{a})/4$
(D) $\pm(\sqrt{4a})/a^2$
(E) $\pm(4\sqrt{a})/a$

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17. If x is inversely proportional to y^{-1} and $x = s$ when $y^{-1} = 4t$, then what is the value of y in terms of t when $x = 4s$?

(A) $t/16$
(B) $t/4$
(C) $1/t$
(D) t
(E) $16t$

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18. Jordan is now four times older than Grace. In 30 years, he will be 18 years older than Grace. What is Jordan's age now?

(A) 10
(B) 12
(C) 20
(D) 24
(E) 48

19. If u is inversely proportional to $v^{1/2}$ and $u = -5$ when $v^{1/2} = 3^{-1}$, then what is the value of v when $u = -1$?

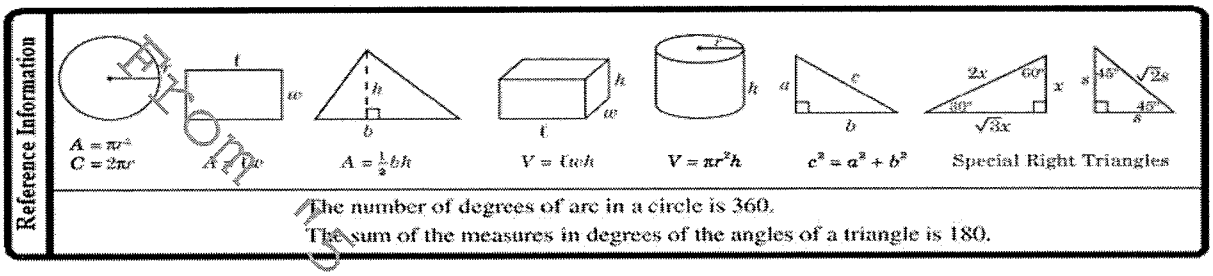
(A) 1/12
(B) 1/25
(C) 5/6
(D) 5/3
(E) 25/9

20. Max decides to carve out a cylinder in a wooden cube. The cube has a side length of 6 cm, and the cylinder has a radius of 2 cm. What is the surface area of the cube after the cylinder has been carved out?

(A) $216 - 24\pi$
(B) $216 + 16\pi$
(C) $144 + 24\pi$
(D) $216 - 16\pi$
(E) $18\pi - 36$

SECTION END

Time: 20 Minutes
16 Questions



1. It takes 6 seconds of pulling a lever to raise a pump to 24 feet. At this rate, how high is the pump after the lever is pulled for 2 seconds?

(A) 3
(B) 4
(C) 8
(D) 12
(E) 18

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2. What is the value of $(-3)^3 + (-4)^2$?

(A) -25
(B) -11
(C) 0
(D) 7
(E) 11

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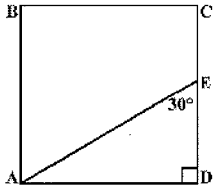
3. In the *xy*-plane, segment DE passes through points (2, 4) and (-4, 8). What is the midpoint of segment DE?

(A) (-6, 4)
(B) (-2, 12)
(C) (-1, 6)
(D) (5, 5)
(E) (6, 4)

4.



If the area of rectangle ABCD is 24, and ED = $4\sqrt{3}$, then what is the length of AB?

(A) 2
(B) 3
(C) 4
(D) 6
(E) 8

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5. If a is an odd integer and b is an even integer, which of the following must be an odd integer?

I. $ab + 1$
II. $2a + 2b$
III. $3(a - b)$

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

6. If $f(x) = -4x - (3x - 8)$, what is the value of $f(2)$?

(A) - 14
(B) - 12
(C) - 10
(D) - 8
(E) - 6

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7. If a, b, and c are positive consecutive even integers and $c > b > a$, what is the value of b^2 in terms of a?

(A) $a^2 + 1$
(B) $(a - 1)^2$
(C) $(a + 2)^2$
(D) $a^2 + 4$
(E) $(a + 1)^2$

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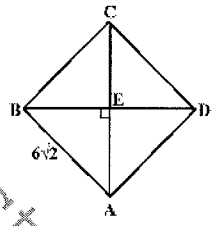
8. If $3x + 2$, $2x - 10$, and $x - 1$ are integers, and $x + 3$ is the average of these numbers, then which of the following is a possible value of x?

(A) 2
(B) 5
(C) 6
(D) 8
(E) 9

9. Trent walked from John's house three miles due north then four miles due east, while John walked six miles due south and eight miles due west. If John were to walk directly to Trent's location, how many hours would it take him if John walks at a rate of three miles per hour?

(A) 4
(B) 5
(C) 10
(D) 14
(E) 15

10.



In the figure above, if segment BD bisects segment CA, what is the area of triangle CED?

(A) 6
(B) 9
(C) 12
(D) 18
(E) 36

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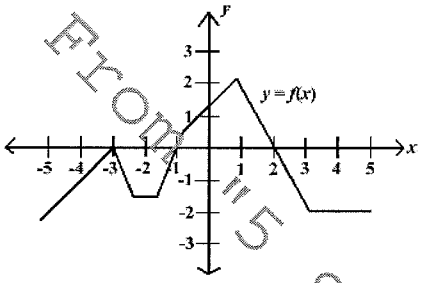
11. If $k = m^2n^2$, k is not 0, and the values of m and n are doubled, then the value of k increases by which of the following factors?

(A) 0
(B) 2
(C) 4
(D) 8
(E) 16

12.



The graph above represents $y = f(x)$. If $f(x) = 0$, what is the sum of all the values of x?

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

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13. If $4c^2 - 16e^2 = |(-8d)^2|$, then what is the value of c^2 in terms of d and e?

(A) $16d^2 + 4e^2$
(B) $2(2d + e)$
(C) $4(d + e)$
(D) $64d^2 + 16e^2$
(E) $16d^2e^2$

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14. If exactly three triangles are used to construct a rectangle, what is the minimum number of right triangles that can be used in the rectangle's construction?

(A) 0
(B) 1
(C) 2
(D) 4
(E) 6

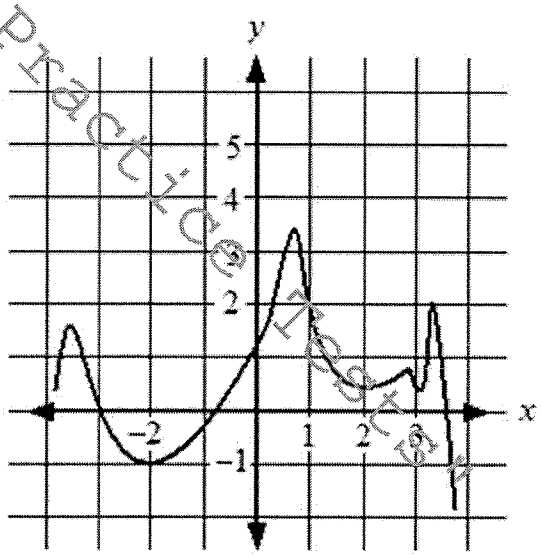
15.

18, 42,...

In the sequence above, each term after the first term, 18, is thirty less than four times the preceding term. What is the sum of the units digits of the first 12 terms?

(A) 2
(B) 8
(C) 9
(D) 60
(E) 77

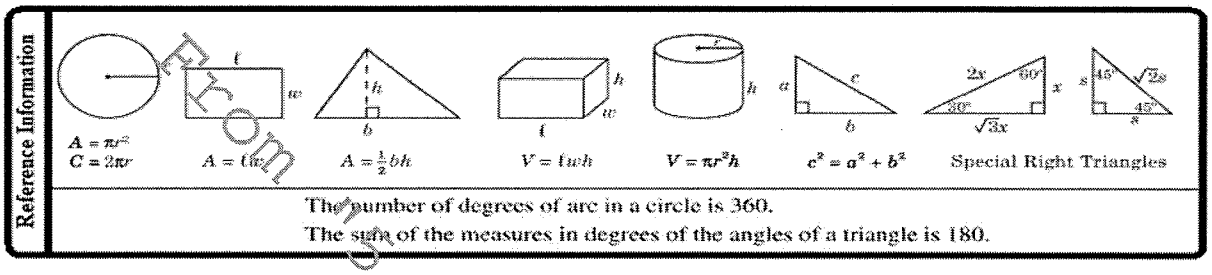
16.



The graph above has a function of b. Which of the following has the approximate value of $b(2)$?

(A) 0.5
(B) 0.9
(C) 1
(D) 1.5
(E) 1.9

Time-25 Minutes
18 Questions



1. The smallest integer of a set of consecutive integers is -13. If the sum of the integers is 14, what is the total number of integers in the set?

(A) 24
(B) 25
(C) 26
(D) 28
(E) 32

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2. If w is a positive integer and $w^2 = w^3$, then which of the following is a possible value of w?

(A) -10
(B) -2
(C) -1
(D) 1
(E) 2

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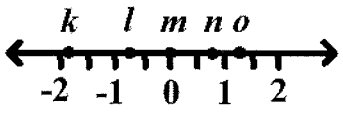
3. If p and q are both even integers and r is an odd integer, which of the following expressions will not result in an answer that is even?

(A) $pr + q^2$
(B) $q(p + r)^p$
(C) $(rq)^2 - p$
(D) $(p \bullet r)^q$
(E) $r(p - r)^q$

4.



In the number line above, which point best approximates the value of $(k \times m)^2$?

(A) point k
(B) point l
(C) point m
(D) point n
(E) point o

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5. If p and q are consecutive negative even integers whose sum is -120, and $q > p$, what is the value of $|q - p|$?

(A) -4
(B) -2
(C) 0
(D) 2
(E) 4

6. In a sequence, the first term is -3. Each term after the first term is four less than two times the preceding term. Which term is the first one that has an absolute value greater than 200?

(A) 3
(B) 6
(C) 9
(D) 12
(E) none

7. If $\sqrt{x} = x\sqrt{x} = x^2 = \sqrt{x^2}$, and $x > 0$, what is the value of x?

(A) 1/2
(B) 0
(C) 1
(D) 1.5
(E) 2

8. If $s^2 = t^{-1}$ and $t^{1/4} = u^{-1/3}$, then what is the value of s in terms of u?

(A) $u^{-2/3}$
(B) $u^{-1/3}$
(C) $u^{1/6}$
(D) $u^{1/3}$
(E) $u^{2/3}$

9. If the average of w and x is 30, the average of p and q is 30, and the average of m and n is 30, what is the average of w, x, p, q, m, and n?

10. If $\frac{p}{q} = 2 + \frac{x}{y}$, then what is the value of $\frac{q}{p}$ in terms of x and y?

11. If $y + z = 18$ and 40 percent of 75 percent of p is the average of y and z, what is the value of p?

12. If $-|-f| = 3h - 12$ and $h^{1/2} = m^{-1/2}$, what is the value of f in terms of m?

13. If 30 percent of 50 percent of x is 60 percent of y minus 75 percent of y, then what is the value of x in terms of y?

14. a and b are positive consecutive integers and $b > a$. When b is seven more than $\sqrt{a}$, what is the greatest possible value of a?

15. If the graphs of $y = 3x^2 - 15$ and $y = -4x + p$ intersect at point $(3, r)$, then what is the value of $\frac{p}{r}$?

16. If $x \bullet y = 3y - 2(x + y)$, what is $2 \bullet 4$?

17. If x and y^2 are directly proportional and $x = 6$ when $y^2 = 8$, then what is the value of y^{-2} when $x = 2$?

18. The function $f(x) = x^2 + x - 24$ and $h(t) = x^2$. If $3h(t) = f(2x)$, what is one possible value of x?

TEST END