
40 Items • SAT-Style Mathematics

Based on the mathematical skills and question styles represented in SAT Practice Tests 4, 5, and 6.

Directions

Choose the best answer for each question. Show your solution on a separate solution paper. A calculator may be used. Each question has one correct answer.

1. Solve for x : $3x + 7 = 25$.

A) 4

C) 8

B) 6

D) 10

2. A school club has 84 members. If 12 new members join each week and no one leaves, how many members will there be after 5 weeks?

A) 96

C) 144

B) 132

D) 156

3. The equation $5x - 2y = 18$ relates x and y . Which equation gives y in terms of x ?

A) $y = \frac{5x+18}{2}$

C) $y = \frac{18-5x}{2}$

B) $y = \frac{5x-18}{2}$

D) $y = \frac{18+5x}{2}$

4. If $f(x) = 4x - 9$, what is $f(6)$?

A) 15

C) 24

B) 18

D) 33

5. The table shows x : 0, 1, 2, 3 and $f(x)$: 7, 11, 15, 19. Which equation defines f ?

- A) $f(x)=3x+7$ C) $f(x)=7x+4$
B) $f(x)=4x+7$ D) $f(x)=11x-4$

6. A jacket originally costs \$80 and is discounted by 25%. What is the sale price?

- A) \$20
B) \$55
C) \$60
D) \$65

7. A car travels 270 miles using 9 gallons of gasoline. At the same rate, how many miles can it travel using 14 gallons?

- [illegible]

8. The ratio of red to blue marbles in a bag is 3:5. If there are 40 blue marbles, how many red marbles are there?

- A) 15
B) 20
C) 24
D) 30

9. A recipe uses 2.5 cups of flour for 10 servings. How many cups are needed for 24 servings?

- A) 5
B) 6
C) 6.5
D) 7.5

10. A population increases from 12,000 to 13,800. What is the percent increase?

- A) 12% C) 18%
- B) 15% D) 20%

11. The scores are 12, 15, 15, 18, 20, 25. What is the median?

A) 15

C) 18

B) 16.5

D) 17.5

12. The mean of five numbers is 18. Four of the numbers are 12, 17, 20, and 24. What is the fifth number?

A) 15

C) 19

B) 17

D) 21

13. A scatterplot shows that as x increases, y generally decreases. Which statement best describes the relationship?

A) Positive association

C) No association

B) Negative association

D) Constant association

14. A survey of 250 students found that 38% prefer studying in the morning. How many students is this?

A) 85

C) 95

B) 90

D) 100

15. A data set has a minimum of 14 and a maximum of 63. What is its range?

A) 39

C) 53

B) 49

D) 77

16. A circle has radius 7. Which expression represents its area?

A) 7π

C) 28π

B) 14π

D) 49π

17. A triangle has base 12 cm and height 9 cm. What is its area?

A) 21 cm^2

C) 54 cm^2

B) 42 cm^2

D) 108 cm^2

18. A rectangular prism has length 8, width 5, and height 3. What is its volume?

A) 40

C) 120

B) 80

D) 160

19. Two angles of a triangle measure 47° and 68° . What is the measure of the third angle?

A) 55°

C) 75°

B) 65°

D) 85°

20. A right triangle has legs of lengths 9 and 12. What is the length of its hypotenuse?

A) 13

C) 18

B) 15

D) 21

21. If $x^2 - 7x + 12 = 0$, what are the solutions?

A) 2 and 6

C) -3 and -4

B) 3 and 4

D) 1 and 12

22. The function $f(x)=2(x-3)^2+5$ has its minimum value at which point?

A) (-3,5)

C) (3,5)

B) (3,-5)

D) (5,3)

23. Which expression is equivalent to $(x+5)(x-2)$?

A) $x^2+3x-10$

C) $x^2+7x-10$

B) $x^2-3x-10$

D) $x^2+3x+10$

24. For $x \neq 3$, which expression is equivalent to $\left(\frac{x^2-9}{x-3}\right)$?

A) $x-3$

C) x^2+3

B) $x+3$

D) x^2-3

25. If $2^{(x+1)} = 32$ what is x ?

A) 3

C) 5

B) 4

D) 6

26. The equation $y = x^2 - 6x + k$ has exactly one x -intercept. What is k ?

A) 6

C) 9

B) 8

D) 12

27. A store charges a fixed \$12 delivery fee plus \$4 per item. Which equation gives the total cost C for x items?

A) $C=12x+4$

C) $C=16x$

B) $C=4x+12$

D) $C=12x-4$

28. A tank is 30% full. After adding 18 liters, it is 60% full. What is the tank's capacity?

A) 30 L

C) 60 L

B) 45 L

D) 90 L

29. The table gives x : 2, 4, 6, 8 and y : 9, 15, 21, 27. Which equation models the relationship?

A) $y=2x+5$

C) $y=3x+9$

B) $y=3x+3$

D) $y=6x-3$

30. A study reports that students who sleep more tend to have higher test scores. Which conclusion is most appropriate from this observational relationship?

A) More sleep definitely causes higher scores.

B) Higher scores definitely cause more sleep.

C) Sleep duration and scores are positively associated.

D) There is no relationship between sleep and scores.

31. A circle has equation $(x-4)^2+(y+3)^2=25$. What is its center?

A) (4,3)

C) (4,-3)

B) (-4,3)

D) (-4,-3)

32. A central angle measures 120° in a circle. What fraction of the circle's circumference corresponds to this arc?

A) $1/6$

C) $1/3$

B) $1/4$

D) $2/3$

33. An isosceles right triangle has legs of length 10. What is the hypotenuse?

A) 10

C) 20

B) $10\sqrt{2}$

D) $20\sqrt{2}$

34. A cylinder has radius 3 and height 10. What is its volume?

A) 30π

C) 90π

B) 60π

D) 120π

35. The roots of $x^2+bx-18=0$ are 3 and -6 . What is b ?

A) -3

C) 6

B) 3

D) -6

36. If $g(x)=x(x-4)(x+2)$, which value of x is NOT a zero of g ?

A) -2

C) 2

B) 0

D) 4

37. The equation $3x^2-12x+9=0$ can be rewritten as $3(x-1)(x-3)=0$. What is the sum of the solutions?

A) 2

C) 4

B) 3

D) 6

38. If $4x^2-25=0$, what is the positive solution?

A) 2.5

C) 6.25

B) 5

D) 12.5

39. A population is modeled by $P(t) = 500(1.08)^t$, where t is measured in years. What does 1.08 represent?

A) An increase of 1.08 people per year

C) An 80% increase each year

B) An 8% increase each year

D) A starting population of 1.08

40. The line $y=2x+1$ intersects the parabola $y=x^2$ at two points. What is the sum of the x -coordinates of the intersection points?

A) -2

C) 2

B) 0

D) 3