Practice Test 1 – Module I

SAT Math · Module I · Baseline

Time: 35 minutes **Questions:** 22 **Calculator:** allowed (Desmos)
Work through the questions here, then enter your answers in the online quiz on the SmartThink website to get your score, topic breakdown and explanations.

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1. What is the solution to the given equation?

$$4x + 2x = 24$$

a. 12
b. 6
c. 4
d. 24

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2. What value of *x* satisfies the given equation below?

$$-2x + 5x = 21$$

a. -3
b. 3
c. -7
d. 7

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3. Which answer is equal to $x^{\frac{3}{4}}$?

a. $\sqrt[3]{x^4}$
b. $\sqrt[4]{x^3}$
c. $4\sqrt{x^3}$
d. $3\sqrt{x^4}$

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4. A line in the *xy*-plane passes through the point (0, 3). It has a slope of 2. What is the equation of the line?

a. $y = \frac{x}{2} + 3$
b. $y = 3x$
c. $y = 2x + 3$
d. $y = 3x + 2$

5. $\frac{1}{2}x = 10$. What is the value of $x \div 4$?

Answer: ☐

Show your work:

6. In the equation below, *k* is a constant. If *x* = 24, what is the value of *k*?

$$\sqrt{k-5} + x = 34$$

a. 100
b. 5
c. 10
d. 105

7. The perimeter of a square is 24. What would the total area of two squares be?

a. 36
b. 48
c. 6
d. 72

8. Luna has been working on her typing skills and wants to know how many words she can type in 20 minutes. Given the function can be modeled in the form $h(x) = mx + b$ and $h(2) = 120$ and $h(5) = 180$, how many words can she type in 20 minutes?

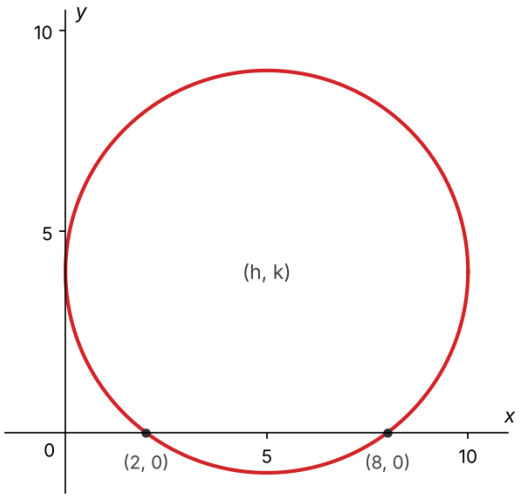
a. 20 words
b. 240 words
c. 400 words
d. 480 words

9. Based on the table, what is the median of the values?

Value	Frequency
4	4
5	5
6	6
7	3
8	3
9	4
10	2

a. 3.9
b. 6
c. 7
d. 8

10. In the *xy*-plane below, the circle has center (*h*, *k*) and a radius of 5. It crosses the *x*-axis at (2, 0) and (8, 0). What is the value of *h*?



Answer:

Show your work:

11. The table below shows a town's population over the course of 100 years. Which statement best describes the table?

Year	Number of People
1900	100
1925	1,000
1950	10,000
1975	100,000
2000	1,000,000

a. Increasing linear
b. Decreasing linear
c. Increasing exponential
d. Decreasing exponential

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12. A bottle producing factory produces 350 bottles per minute. How many bottles does it produce in one week (Monday – Friday) if the factory runs for 10 hours each day?

a. 3,500
b. 17,500
c. 1,050,000
d. 1,470,000

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13. If $a - b = 10$ and $\frac{15}{a} = -3$, what is the value of $a + b$?

a. -5
b. 10
c. -10
d. -20

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14. A rectangular dining room is 4 feet wider than it is long. Its area is 96 square feet. How wide, in feet, is the dining room?

a. 4
b. 8
c. 12
d. 24

15. Train A is an older, slower train and travels a distance of 100 feet in 3 seconds. Train B is a newer, faster train and travels a distance of 80 feet in 2 seconds. After 10 minutes, how many feet ahead of Train A is Train B?

Answer:

Show your work:

16. In the equations below, *a* is a constant. What value of *a* will make the system of equations have infinitely many solutions?

$$-3x - 5y = 15$$
$$12x + 20y = -120a$$

a. -4
b. -2
c. $\frac{1}{2}$
d. 2

17. What value for *a* would give you no real solutions?

$$20x - 12y = 27$$
$$5ax - 2y = -9$$

a. $a = -\frac{4}{3}$
b. $a = \frac{2}{3}$
c. $a = -3$
d. $a = 1$

18. In the given equation below there are two solutions. What is the sum of the solutions?

$$2x^2 + 11x + 15 = 0$$

a. 15
b. -2.5
c. -3
d. -5.5

19. What is the center and radius of the circle?

$$x^2 + 2x + y^2 - 6y - 15 = 0$$

a. Center: (1, −3); r = 25
b. Center: (−1, 3); r = 5
c. Center: (−1, 3); r = 25
d. Center: (1, −3); r = 5

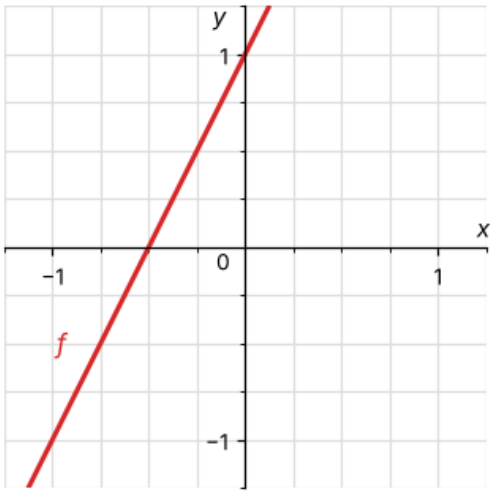
20. What value of *x* satisfies the given equation?

$$\sqrt{x^2 + 5x + 10} = x + 5$$

Answer: _____

Show your work:

21. The graph of the linear function *f* is shown below in the *xy*-plane. The graph of the linear function *h* is perpendicular to the graph of *f* and passes through the point (0, −2). What is the value of *h*(5)?



a. 4
b. -4.5
c. -4
d. 0

22. Two numbers, *m* and *n*, are both greater than zero, and *m* raised to the $\frac{1}{4}$ power is equal to *n* raised to the $\frac{1}{2}$ power. For what value of *x* will $m^{2x-5.5} = n$?

Answer: ☐

Show your work:

END OF PRACTICE TEST 1 – MODULE I