Practice Test 1 – Module II

SAT Math · Module II · Adaptive

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.

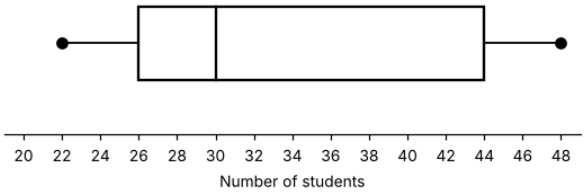
---

1. What is the solution to $3(x + 5) = 2x - 12$?

a. 12
b. -12
c. 27
d. -27

---

2. The box plot gives a pictorial representation of the number of students in different lecture classes at a college. What is the range of the number of students in these lecture classes?



a. 18
b. 26
c. 30
d. 48

---

3. Ana received a scholarship to go to college. For the first half of her first year of school, the scholarship was $12,500. If she continued to receive the scholarship in a linear fashion, how much would she receive in scholarship money after 4 years?

a. $6,250
b. $25,000
c. $50,000
d. $100,000

4. In the equation below, *m* and *n* are positive constants. What is the value of *m* − *n*?

$$(mx + n)(mx - n) = 25x^2 - 36$$

a. -1
b. 1
c. 11
d. 25

---

5. To open a new checking account at the bank you must deposit at least $500 into your account on the day you open the account. Theresa wants to open an account and has already saved $260 thus far. If she plans on earning $40 per day, in how many days will she be ready to open an account?

Answer: ☐

Show your work:

---

6. When *x* = 25, the value of $\sqrt{x} + \sqrt{4x} = 3y$. What is the value of *y*?

a. 15
b. 5
c. 3
d. 35

---

7. The following data sets represent the 40 yard dash times of college football players. Select the true statement about the data sets.

Data Set 1: 4.4, 4.8, 4.3, 4.9, 4.8, 5.2, 4.5, 4.5, 4.8
Data Set 2: 4.9, 5.0, 4.5, 4.7, 4.9, 4.3, 4.3, 4.5, 4.9

a. The median of Data Set 1 is greater than that of Data Set 2.
b. The median of Data Set 2 is greater than that of Data Set 1.
c. There is not enough information to compare the medians of the data sets.
d. The median of Data Set 1 is equal to the median of Data Set 2.

---

8. Which of the following is equivalent to $\dfrac{x^2 + 7x + 10}{x^2 + 4x + 4}$?

a. $3x + 6$
b. $x^2 + 2$
c. $\dfrac{x + 5}{x + 2}$
d. $\dfrac{x^2 + 5}{x^2 + 2}$

9. Which are equivalent to $x^{\frac{2}{3}} \cdot x^{\frac{2}{3}}$?

I. $x^{\frac{4}{9}}$
II. $x^{\frac{4}{3}}$
III. $\sqrt[3]{x^4}$

a. II and III
b. III only
c. I and III
d. I and II

10. In the *xy*-plane, the graph of $y = x^2 + bx + c$, where *b* and *c* are constants, has *x*-intercepts at $x = -4$ and $x = 3$. What is the value of *b*?

Answer: ____

Show your work:

11. Table A shows the frequency of the number of pizza slices eaten in New York City. Table B shows the frequency of the number of pizza slices eaten in Miami. Which statement is true based on the information given in the tables?

Table A
New York City

# of Slices Eaten	Frequency
1	3
2	5
3	4
4	2
5	1

Table B
Miami

# of Slices Eaten	Frequency
1	4
2	4
3	3
4	3
5	1

a. The mean and median are the same in each table.
b. The means are the same but the median is higher in Table A.
c. The mean in Table A is higher than Table B and the medians are the same.
d. The mean in Table B is higher than Table A and the medians are the same.

12. Which of the following is equivalent to the given expression below?

$$\frac{3x^2 + 15x - 18}{6x^2 + 36x}$$

a. $\dfrac{x - 1}{2x}$

b. $\dfrac{1}{2}$

c. $\dfrac{3(x - 3)(x + 2)}{6x(x + 6)}$

d. $\dfrac{(x - 6)(x + 1)}{2x(x + 6)}$

---

13. Which of the following equations relates *y* to *x* for the values in the table below?

x	1	2	3	4	5
y	0.4	0.24	0.144	0.0864	0.05184

a. $y = \dfrac{2}{3}\left(\dfrac{3}{5}\right)^x$

b. $y = 0.4(0.24)^x$

c. $y = 0.4x + 1$

d. $y = \dfrac{1}{2}\left(\dfrac{4}{5}\right)^x$

---

14. A circle in the *xy*-plane has the equation below. How long is the radius?

$$x^2 + 8x + y^2 + 10y - 23 = 0$$

Answer: _____

Show your work:

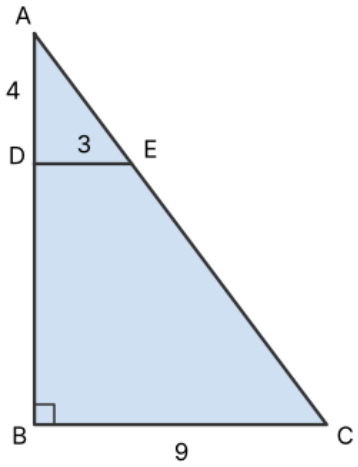
---

15. A rocket is launched from 10 meters above ground level. A quadratic function can be used to model the height, in meters, of an object above the ground in terms of time, in seconds, after the object was launched. Its maximum height, which is reached 8 seconds later, is 586 meters. Based on the model, what would its height be after 2 seconds?

Answer: _____

Show your work:

16. In the figure below, △ABC is a right triangle and $\overline{DE}$ is parallel to $\overline{BC}$. What is the perimeter of △ABC?



a. 12
b. 15
c. 36
d. 54

---

17. On an *xy*-plane, line *k* has Point A and Point B on it. Point A has coordinates (*m*, *n*) and Point B has coordinates (*p*, *q*). If $m > 0,\ n > 0,\ p < 0$, and $q < 0$, what must the slope of the line be?

a. Negative
b. Positive
c. Zero
d. Undefined

---

18. A number increased by 50% and then decreased by $\frac{1}{3}$ is what percent of the original number?

a. 100%
b. 67%
c. 17%
d. 60%

19. What is the solution(s) to the equation given below?

$$-2|x - 7| = 20$$

I. −3
II. 3
III. There is no solution

a. I
b. II
c. I and II
d. III

20. In the quadratic equation $2x^2 - 3x - 6 = 0$, if $x = m \pm \sqrt{n}$, what is the value of *m*?

Answer: ____

Show your work:

21. For $i = \sqrt{-1}$, when the expression $\dfrac{4 + 3i}{6 - 2i}$ is rewritten in *a* + *bi* form, where *a* and *b* are real numbers, which expression is equivalent?

a. $\dfrac{15 + 13i}{20}$
b. $\dfrac{15 + 5i}{16}$
c. $\dfrac{9 + 13i}{16}$
d. $\dfrac{9 + 13i}{20}$

22. An online food blogging website counted its subscribers at year's end. From 2021 – 2022, the developers estimate that the percent increase will be half as much as it was from 2020 – 2021. What is the number of subscribers the website developers estimate they will have in 2022?

Year	Subscribers
2020	5,000
2021	7,000

a. 2,000
b. 8,400
c. 9,000
d. 10,000

END OF PRACTICE TEST 1 – MODULE II