

Digital SAT Practice Paper 1

Math

44 questions (22 per module) · 4 options or student-produced response · 35 minutes per module · Desmos calculator available

How to use this booklet

- This practice test has two modules of 22 questions each, 35 minutes per module. Attempt Module 1 in full before Module 2 (Module 2 is harder).
- Most questions are multiple choice with four answer options. About one in four are student-produced response (SPR) questions: work out the answer and write it in the box. A fraction or its decimal is acceptable.
- The Desmos graphing calculator is available for the whole test. Unless otherwise noted, all variables and expressions represent real numbers.

MODULE 1 — STANDARD DIFFICULTY

22 questions · 35 minutes · Desmos calculator available

1. A taxi company charges a flat fee of \$7 plus \$2 for each mile traveled. A passenger paid \$33. How many miles did the passenger travel?

Student-produced response: write your answer in the box.

2. In the system of equations below, t is a constant. $3x + 2y = 12$ and $12x + ty = 49$. For which value of t does the system have no solution?

- A 8
- B 11
- C 14
- D 2

3. A prize of \$143 is divided between two people in the ratio 5 : 8. What is the smaller share, in dollars?

- A 88
- B 55
- C 11
- D 71

4. What is the median of the following data set? 46, 36, 33, 42, 38

- A $\frac{79}{2}$
- B 39
- C 38
- D 42

5. What is the value of $(3^2)^1 \div 3^1$?

Student-produced response: write your answer in the box.

6. A right triangle has a hypotenuse of 34 inches and one leg of 16 inches. How long is the other leg, in inches?

- A 30
- B 18
- C 31
- D 50

7. The variable y is directly proportional to x . When $x = 4$, $y = 16$. What is y when $x = 10$?

Student-produced response: write your answer in the box.

8. A line has the equation $y = -4x + 2$. What is the slope of any line PERPENDICULAR to it?

- A $-\frac{1}{4}$
- B 4
- C -4
- D $\frac{1}{4}$

9. A rectangular room measures 12 feet by 15 feet. How many square YARDS of carpet are needed to cover it? (1 yard = 3 feet.)

- A 180
- B $\frac{20}{3}$
- C 20
- D 60

10. A trapezoid has parallel sides of length 6 cm and 22 cm, and a height of 10 cm. What is its area, in square centimeters?

- A 140
- B 150
- C 280
- D 82

MATH

Answers & worked solutions

Answer Key

1	13	2	A	3	B	4	C	5	3	6	A
7	40	8	D	9	C	10	A	11	B	12	A
13	D	14	A	15	C	16	21	17	D	18	B
19	B	20	D	21	36	22	C	23	5	24	C
25	D	26	A	27	C	28	A	29	32	30	A
31	D	32	49	33	D	34	B	35	11	36	1736
37	A	38	C	39	1	40	C	41	B	42	D
43	B	44	B								

1. A taxi company charges a flat fee of \$7 plus \$2 for each mile traveled. A passenger paid \$33. How many miles did the passenger travel? [Linear models]

Correct answer: 13

- Write the cost as an equation: $\text{cost} = 7 + 2 \times \text{miles}$.
- $\$33 = 7 + 2 \times m$, so $2 \times m = 33 - 7 = 26$.
- $m = 26 \div 2 = 13$ miles.
- Enter 13 in the answer box.

LOS: SAT Math: linear models

KEY TAKEAWAY

A flat fee plus a rate per unit gives $y = (\text{rate})x + (\text{fee})$: subtract the fee before dividing by the rate.

2. In the system of equations below, t is a constant. $3x + 2y = 12$ and $12x + ty = 49$. For which value of t does the system have no solution? [Systems of equations]

Correct answer: A — 8

- A system of two linear equations has no solution when the lines are parallel but not identical: the coefficients are proportional but the constants are not.
- The x-coefficients are in the ratio $12 : 3$, so the y-coefficients must be too: $t = 4 \times 2 = 8$.
- The constants 12 and 49 are not in the same ratio, so the lines are parallel and distinct.
- Why the other options are wrong:
- B (11): the coefficients of x and y must be in the same ratio in both equations
- C (14): set the ratio of the y-coefficients equal to the ratio of the x-coefficients
- D (2): the second equation's y-coefficient must be 4 times the first (the same multiple as for x)

LOS: SAT Math: systems of equations