

Linear equations and functions

Math / Algebra / Linear equations in one variable / Linear functions

Prerequisites: Arithmetic, negative numbers and the distributive property

Level: Foundational to intermediate instruction

Coverage: 12 original questions: 1 diagnostic, 3 worked examples, 3 guided, 3 independent, 1 exit ticket and 1 extension. Selected skill coverage, not the complete SAT syllabus.

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Student worksheet

Select one answer per question. Explain the supporting equation, context clue or evidence. Questions 1-10 are practice, 11 is the exit ticket, and 12 is an extension.

Question 1

If $3x + 6 = 21$, what is x ?

- A. 3
- B. 5
- C. 7
- D. 9

Reasoning: _____

Question 2

If $2(x - 4) = 10$, what is x ?

- A. 1
- B. 5
- C. 9
- D. 14

Reasoning: _____

Question 3

A tutor charges a \$15 booking fee and \$30 per hour. Which equation gives cost C for h hours?

- A. $C = 15h + 30$
- B. $C = 30h + 15$
- C. $C = 45h$
- D. $C = 30h - 15$

Reasoning: _____

Question 4

A line passes through (1, 2) and (4, 11). What is its slope?

- A. $\frac{1}{3}$
- B. 3
- C. 9
- D. $\frac{13}{5}$

Reasoning: _____

Question 5

If $5x - 2 = 3x + 8$, what is $2x$?

- A. 5
- B. 6
- C. 10
- D. 20

Reasoning: _____

Question 6

Which equation describes a line parallel to $y = 4x$ that passes through (2, 5)?

- A. $y = 4x - 3$
- B. $y = 4x + 3$
- C. $y = 2x + 5$
- D. $y = \frac{x}{4} + 5$

Reasoning: _____

Question 7

How many real solutions does $2(x + 3) = 2x + 6$ have?

- A. None
- B. One
- C. Two
- D. Infinitely many

Reasoning: _____

Question 8

If $(x + 3)/4 = 5$, what is x ?

- A. 2
- B. 8
- C. 17
- D. 23

Reasoning: _____

Question 9

A tank contains 50 liters and drains at 2 liters per minute. Which expression gives its volume after t minutes, before it empties?

- A. $50 + 2t$
- B. $2t - 50$
- C. $50 - 2t$
- D. $25 - t$

Reasoning: _____

Question 10

How many real solutions does $3x + 1 = 3x + 4$ have?

- A. None
- B. One
- C. Three
- D. Infinitely many

Reasoning: _____

Question 11 - Exit ticket

The line $y = -2x + 7$ has what y-intercept?

- A. -2
- B. 2
- C. 5
- D. 7

Reasoning: _____

Question 12 - Extension

For $y = 3x + b$, the point $(4, 17)$ lies on the line. What is b ?

- A. 5
- B. 12
- C. 17
- D. 29

Reasoning: _____