ExamPath

CLASS 9 MATHEMATICS · FBISE · UNIT 5

# Unit 5: Linear Equations and Inequalities — Beginner Practice

**15** multiple-choice questions  Suggested time: **15 minutes**  1 mark each

Name:  Date:  Score:  / 15

Circle one answer for each question. The answer key with explanations is on the last pages, so try every question before you check. These are practice questions, not official FBISE papers.

**1.** The standard form of a linear equation in one variable is:

(A) $ax + b = 0$, where $a \neq 0$
(B) $ax^2 + b = 0$
(C) $a/x + b = 0$
(D) $ax + by = 0$

**2.** The exponent of the variable in a linear equation is:

(A) 0
(B) −1
(C) 2
(D) 1

**3.** When both sides of an inequality are multiplied by a negative number, the inequality sign:

(A) becomes ≠
(B) stays the same
(C) becomes =
(D) is reversed

**4.** Which equation is equivalent to $2x + 3 = 4$?

(A) $x + 3 = 2$
(B) $x = 2$
(C) $2x = 1$
(D) $2x = 7$

**5.** Which step isolates x in $x + 3 = 7$?

(A) Divide both sides by 7
(B) Multiply both sides by 3
(C) Subtract 3 from both sides
(D) Add 3 to both sides

**6.** What are the solutions of $|x| = 8$?

(A) Only $x = -8$
(B) $x = 8$ or $x = -8$
(C) No solution
(D) Only $x = 8$

**7.** What is a solution of an equation?

(A) A replacement for the variable that makes the equation true
(B) The coefficient of the variable
(C) Its right-hand side
(D) The number of terms in it

**8.** Which equation is NOT linear?

(A) $x/2 = 7$
(B) $x^2 = 4$
(C) $5x + 3 = 5$
(D) $2x + 3 = 0$

**9.** Why must we check a solution of a radical equation in the original equation?

(A) Squaring can create an extraneous root
(B) Squaring removes the variable
(C) The solution is always wrong
(D) Radicals are always negative

**10.** Solve $x + 5 < 8$, where $x \in R$.

(A) $x > 13$
(B) $x > 3$
(C) $x < 13$
(D) $x < 3$

**11.** A statement that two algebraic expressions are not equal is called an:

(A) inequality
(B) equality
(C) equation
(D) identity

**12.** Solve $-7x + 24 = 3$.

(A) $x = 21$
(B) $x = -3$
(C) $x = 3$
(D) $x = 27/7$

**13.** Why is $|-5|$ equal to 5?

(A) $-5$ is positive
(B) Distance from 0 is never negative
(C) 5 is odd
(D) Absolute value always gives 5

**14.** Solve $\sqrt{x} + 3 = 7$.

(A) $x = 4$
(B) $x = 25$
(C) $x = 16$
(D) $x = 10$

**15.** The absolute value of a number is its:

(A) opposite sign
(B) distance from 0 on the number line
(C) reciprocal
(D) square

# Answer key

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| | | | | |
|---|---|---|---|---|
| **1** A | **2** D | **3** D | **4** C | **5** C |
| **6** B | **7** A | **8** B | **9** A | **10** D |
| **11** A | **12** C | **13** B | **14** C | **15** B |

## Explanations

**1. A. ax + b = 0, where a ≠ 0**
A linear equation in one variable can be written as ax + b = 0 with a ≠ 0.

**2. D. 1**
A linear equation has degree one, so the exponent of the variable is always 1.

**3. D. is reversed**
For example, −2 < 5 becomes 6 > −15 after multiplying by −3.

**4. C. 2x = 1**
Subtracting 3 from both sides gives 2x = 1. Equivalent equations have the same solution.

**5. C. Subtract 3 from both sides**
Subtracting 3 from both sides cancels the +3 and gives x = 4.

**6. B. x = 8 or x = −8**
Both 8 and −8 are 8 units from 0.

**7. A. A replacement for the variable that makes the equation true**
A solution is a value of the variable that makes both sides equal.

**8. B. $x^2 = 4$**
In $x^2 = 4$ the exponent of the variable is 2, so it is not linear.

**9. A. Squaring can create an extraneous root**
Squaring both sides can produce an extra root that does not satisfy the original equation.

**10. D. x < 3**
Subtract 5 from both sides: x < 3.

**11. A. inequality**
A statement of inequality uses symbols such as <, >, ≤, ≥ or ≠.

**12. C. x = 3**
Subtract 24: −7x = −21. Divide by −7: x = 3.

**13. B. Distance from 0 is never negative**
−5 is 5 units from 0, and a distance cannot be negative.

**14. C. x = 16**
√x = 4, so x = $4^2$ = 16. Check: √16 + 3 = 7.

**15. B. distance from 0 on the number line**
|x| is the distance of x from 0, so it is never negative.

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