

Math Mastery

Algebra I & Geometry — Key Terminology Quiz
20 Questions | Self-Study Printable Edition

Name: _____

Date: _____

Score: _____ / 20

■ Algebra I

Q1 · Variable & Expression

■ KEY: *variable = unknown box | expression has NO "=" sign*

Which of the following is an algebraic expression (not an equation)?

■ Example: $3x + 2 = 11$ is an EQUATION (has "=") | $3x + 2$ is an EXPRESSION (no "=")

- A) $5x - 3 = 12$
- B) $2x^2 + 7x - 4$
- C) $x = 9$
- D) $4x + 1 = 4x + 2$

Q2 · Like Terms

■ KEY: *like terms = same variable + same exponent | combine ONLY like terms*

Simplify: $4x^2 + 3x - x^2 + 2 - 5x$

■ Group: $(4x^2 - x^2) + (3x - 5x) + 2 = ?$

- A) $5x^2 - 2x + 2$
- B) $3x^2 + 8x + 2$
- C) $3x^2 - 2x + 2$
- D) $4x^2 - 2x + 2$

Q3 · Solving Equations

■ KEY: *inverse operations — do the OPPOSITE to both sides to isolate x*

Solve for x: $3x - 7 = 14$

■ Step 1: Add 7 to both sides $\rightarrow 3x = 21$ | Step 2: Divide by 3 $\rightarrow x = ?$

- A) $x = 5$
- B) $x = 7$
- C) $x = 9$
- D) $x = 3$

Q4 · Slope

■ KEY: *slope = rise / run = $(y_2 - y_1) / (x_2 - x_1)$*

What is the slope of the line through (2, 5) and (6, 13)?

■ $m = (13 - 5) / (6 - 2) = 8 / 4 = ?$ | Keep same point "first" for both x and y!

- A) $m = 4$
- B) $m = 2$
- C) $m = 3$
- D) $m = 1/2$

Q5 · Inequalities

■ KEY: FLIP the inequality sign when multiplying or dividing by a NEGATIVE number!

Solve: $-4x + 8 > 20$

■ TRAP: $-4x > 12$ -> divide by -4 -> FLIP ">" to "<" -> $x < ?$

- A) $x > -3$
- B) $x > 3$
- C) $x < -3$
- D) $x < 3$

Q6 · Function

■ KEY: function = each input (x) maps to exactly ONE output (y)

Which set of ordered pairs does NOT represent a function?

■ If the same x-value appears with TWO different y-values -> NOT a function

- A) $\{(1,2), (3,4), (5,6)\}$
- B) $\{(1,2), (1,5), (3,4)\}$
- C) $\{(2,1), (4,1), (6,1)\}$
- D) $\{(0,0), (1,1), (2,4)\}$

Q7 · Systems of Equations

■ KEY: substitution = solve one equation for y, then plug into the other

Solve the system: $y = 2x + 1$ and $3x + y = 16$

■ Replace y in 2nd eq: $3x + (2x+1) = 16$ -> $5x + 1 = 16$ -> $x = ?$ -> find y

- A) $x=2, y=5$
- B) $x=4, y=9$
- C) $x=3, y=7$
- D) $x=5, y=11$

Q8 · Exponent Rules

■ KEY: product rule: same base -> ADD exponents | $x^m * x^n = x^{(m+n)}$

Simplify: $x^3 * x^5$

■ WRONG: x^{15} (multiplying exponents) | RIGHT: $x^{(3+5)} = ?$

- A) x^{15}
- B) x^8
- C) $2x^8$

D) x^2

Q9 · Quadratic Factoring

■ KEY: find two numbers that MULTIPLY to c and ADD to b in $x^2 + bx + c$

Factor completely: $x^2 - 5x + 6$

■ Need: multiply to +6, add to -5 -> try -2 and -3 -> $(-2)(-3)=6$, $(-2)+(-3)=-5$ ✓

A) $(x-2)(x-3)$

B) $(x+2)(x+3)$

C) $(x-1)(x-6)$

D) $(x-2)(x+3)$

Q10 · Polynomial Degree

■ KEY: degree = the HIGHEST exponent in the polynomial (ignore order of terms!)

What is the degree of: $4x^3 - 2x^5 + x - 7$

■ Exponents: 3, 5, 1, 0 -> Highest = ? | Don't be tricked by term order!

A) 3

B) 4

C) 5

D) 7

■ Geometry

Q11 · Supplementary Angles

■ KEY: S=Supplementary=Straight line=180 | C=Complementary=Corner=90

Two supplementary angles; one measures 63 degrees. Find the other.

■ Supplementary: angle A + angle B = 180 -> angle B = 180 - 63 = ?

A) 27 deg

B) 107 deg

C) 117 deg

D) 127 deg

Q12 · Triangle Angle Sum

■ KEY: Triangle Angle Sum = 180 degrees — ALWAYS, no exceptions!

In a triangle, two angles are 47 deg and 85 deg. Find the third angle.

■ $47 + 85 + \text{angle C} = 180$ -> $132 + \text{angle C} = 180$ -> angle C = ?

A) 38 deg

B) 48 deg

C) 58 deg

D) 132 deg

Q13 · Pythagorean Theorem

■ KEY: $a^2 + b^2 = c^2$ | c is ALWAYS the hypotenuse (longest side)

A right triangle has legs of 6 and 8. Find the hypotenuse.

■ $6^2 + 8^2 = 36 + 64 = 100 \rightarrow c = \sqrt{100} = ?$ | Memorize: 3-4-5, 6-8-10 triples!

- A) $c = 7$
- B) $c = 9$
- C) $c = 10$
- D) $c = 14$

Q14 · Circle Area

■ KEY: Area = πr^2 | Circumference = $2\pi r$ -> use RADIUS, not diameter!

A circle has a DIAMETER of 10. What is its area? ($\pi = 3.14$)

■ TRAP: diameter=10, so radius=5 -> Area = $3.14 * 5^2 = 3.14 * 25 = ?$

- A) 31.4
- B) 78.5
- C) 314
- D) 62.8

Q15 · Congruence & Similarity

■ KEY: Congruent = same shape AND size | Similar = same shape, different size

Two triangles have equal angles but different side lengths. They are _____.

■ Same angles = same shape -> Similar (not congruent, since sides differ)

- A) Congruent
- B) Similar
- C) Neither
- D) Identical

Q16 · Parallel Lines & Transversal

■ KEY: alternate interior angles = EQUAL | co-interior angles = 180 deg

Parallel lines cut by a transversal. One co-interior angle is 72 deg. Find the other.

■ Co-interior (same-side interior) angles are supplementary -> $180 - 72 = ?$

- A) 72 deg
- B) 18 deg
- C) 108 deg
- D) 90 deg

Q17 · Volume — Rectangular Prism

■ KEY: Volume = length x width x height | unit = cubic (cm^3 , m^3 , etc.)

A rectangular prism: length=5 cm, width=4 cm, height=3 cm. Find volume.

■ $V = 5 \times 4 \times 3 = ?$ | Always include cubic units in your answer!

- A) 47 cm^3
- B) 60 cm^3
- C) 94 cm^3
- D) 12 cm^3

Q18 · Interior Angles of Polygon

■ KEY: Sum of interior angles = $(n - 2) \times 180$ where n = number of sides

What is the sum of interior angles of a hexagon?

■ Hexagon: $n=6 \rightarrow (6-2) \times 180 = 4 \times 180 = ?$ | Triangle=180, Quad=360, Pent=540

- A) 540 deg
- B) 900 deg
- C) 720 deg
- D) 1080 deg

Q19 · Midpoint Formula

■ KEY: Midpoint = average the x's AND average the y's

Find the midpoint of the segment with endpoints (2, 6) and (8, 4).

■ x: $(2+8)/2 = 5$ | y: $(6+4)/2 = ? \rightarrow$ Midpoint = (5, ?)

- A) (5, 6)
- B) (5, 5)
- C) (4, 5)
- D) (6, 4)

Q20 · Reflection (Transformation)

■ KEY: reflect over x-axis \rightarrow flip y sign | reflect over y-axis \rightarrow flip x sign

Point P(3, -5) is reflected over the y-axis. New coordinates?

■ y-axis reflection: $(x, y) \rightarrow (-x, y)$ | Only x changes sign! (3,-5) \rightarrow (?, ?)

- A) (3, 5)
- B) (-3, 5)
- C) (-3, -5)
- D) (5, -3)

◆ Answer Key

Q1: B	Q2: C	Q3: B	Q4: B	Q5: C
Q6: B	Q7: C	Q8: B	Q9: A	Q10: C
Q11: C	Q12: B	Q13: C	Q14: B	Q15: B

Q16: C

Q17: B

Q18: C

Q19: B

Q20: C

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