

# Algebra 1 & Geometry

Self-Study Practice Worksheet · 20 Multiple Choice Problems

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## Part 1 — Algebra 1

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**QUICK MEMORY POINTS** · ISOLATE → move everything, variable alone | DISTRIBUTE → multiply inside () first | SLOPE = rise/run =  $(y_2 - y_1)/(x_2 - x_1)$  | FOIL = First · Outer · Inner · Last

**A-01** Linear Equations · One Variable

Sarah has 3 times as many stickers as Jake. Together they have 48 stickers. How many stickers does Sarah have?

A) 12 stickers	B) 24 stickers
C) 36 stickers	D) 48 stickers

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**A-02** Two-Step Equations

A taxi charges a \$3 flat fee plus \$1.50 per mile. If a ride cost \$12, how many miles was the ride?

A) 4 miles	B) 6 miles
C) 8 miles	D) 9 miles

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**A-03** Slope of a Line

A hiker starts at an elevation of 200 ft and reaches 500 ft after walking 6 miles. What is the average rate of elevation gain per mile?

A) 20 ft/mile	B) 40 ft/mile
C) 50 ft/mile	D) 60 ft/mile

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**A-04** Inequalities

A student needs at least 70 points to pass. She already earned 43 points. What is the minimum score she needs on the next test?

A) 23	B) 25
C) 27	D) 30

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**A-05** Systems of Equations

Alex buys 2 chips + 1 drink = \$5. Maya buys 1 chip + 2 drinks = \$4. How much does ONE drink cost?

A) \$0.50	B) \$1.00
C) \$1.50	D) \$2.00

**A-06** Distributive Property

Simplify:  $3(2x - 4) + 5x$

A) $11x - 4$	B) $11x - 12$
C) $6x - 12$	D) $11x + 12$

**A-07** Quadratic Equations

A ball's height is  $h = -16t^2 + 32t$  feet. At what time ( $t > 0$ ) does the ball hit the ground ( $h = 0$ )?

A) $t = 1$ sec	B) $t = 2$ sec
C) $t = 4$ sec	D) $t = 16$ sec

**A-08** Proportions & Percentages

A store marks up a jacket from \$40 to \$56. What is the percent increase?

A) 28.6%	B) 30%
C) 40%	D) 16%

**A-09** Functions & Function Notation

Given  $f(x) = 2x^2 - 3x + 1$ , what is  $f(-1)$ ?

A) 0	B) 4
C) 6	D) -4

**A-10** Factoring Trinomials

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

A) $(x+2)(x+3)$	B) $(x-1)(x-6)$
C) $(x-2)(x-3)$	D) $(x+2)(x-3)$

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## Part 2 — Geometry

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**QUICK MEMORY POINTS** · PYTHAGOREAN:  $a^2+b^2=c^2$  (c=hypotenuse) | TRIANGLE SUM: angles =  $180^\circ$  | AREA CIRCLE:  $\pi r^2$  | SIMILAR: proportional sides | ALT. INTERIOR ANGLES: equal

**G-01** Pythagorean Theorem

A ladder leans against a wall. The base is 6 ft from the wall and the wall is 8 ft tall. How long is the ladder?

A) 9 ft	B) 10 ft
C) 12 ft	D) 14 ft

**G-02** Triangle Angle Sum

A triangle has angles measuring  $47^\circ$  and  $68^\circ$ . What is the measure of the third angle?

A) $55^\circ$	B) $60^\circ$
C) $65^\circ$	D) $75^\circ$

**G-03** Area of a Circle

A circular pizza has a diameter of 14 inches. What is its area? (Use  $\pi \approx 3.14$ )

A) $43.96 \text{ in}^2$	B) $87.92 \text{ in}^2$
C) $153.86 \text{ in}^2$	D) $615.44 \text{ in}^2$

**G-04** Similar Triangles

A tree casts a shadow 15 ft long. At the same time, a 5 ft person casts a 3 ft shadow. How tall is the tree?

A) 20 ft	B) 22 ft
C) 25 ft	D) 30 ft

**G-05** Volume of a Rectangular Prism

A fish tank is 30 cm long, 20 cm wide, and 25 cm tall. What is its volume?

A) $1,500 \text{ cm}^3$	B) $6,000 \text{ cm}^3$
C) $15,000 \text{ cm}^3$	D) $75 \text{ cm}^3$

**G-06** Parallel Lines & Transversals

Two parallel lines are cut by a transversal. One angle measures  $115^\circ$ . What is the measure of the alternate interior angle?

A) $65^\circ$	B) $115^\circ$
C) $75^\circ$	D) $45^\circ$

**G-07** Perimeter of a Composite Shape

An L-shaped room has outer dimensions 10 m × 8 m, with a 4 m × 3 m rectangle cut from one corner. What is the perimeter?

A) 30 m	B) 36 m
C) 42 m	D) 48 m

**G-08** Special Right Triangles (45-45-90)

A square has a diagonal of 10 cm. What is the length of one side? (Simplify.)

A) $4\sqrt{2}$ cm	B) $5\sqrt{2}$ cm
C) $5\sqrt{3}$ cm	D) $10\sqrt{2}$ cm

**G-09** Exterior Angles of a Triangle

An exterior angle of a triangle is 130°. One non-adjacent interior angle is 70°. Find the other non-adjacent interior angle x.

A) 40°	B) 50°
C) 60°	D) 80°

**G-10** Arc Length

A circle has a radius of 9 cm. What is the arc length of a central angle of 80°? (Use  $\pi \approx 3.14$ , round to nearest tenth.)

A) 8.4 cm	B) 10.0 cm
C) 12.6 cm	D) 56.5 cm

◆ Answer Key ◆

A·01	<b>C</b>	A·02	<b>B</b>	A·03	<b>C</b>	A·04	<b>C</b>	A·05	<b>B</b>	A·06	<b>B</b>	A·07	<b>B</b>	A·08	<b>C</b>	A·09	<b>C</b>	A·10	<b>C</b>
G·01	<b>B</b>	G·02	<b>C</b>	G·03	<b>C</b>	G·04	<b>C</b>	G·05	<b>C</b>	G·06	<b>B</b>	G·07	<b>B</b>	G·08	<b>B</b>	G·09	<b>C</b>	G·10	<b>C</b>

Score: \_\_\_\_\_ / 20