

Pre-Algebra & Geometry

Self-Study Worksheet Level: Beginner 20 Questions

SECTION 1 — PRE-ALGEBRA

Q 01

If $x + 7 = 3$, what is the value of x ?

■ MEMORY POINT ISOLATE — do the opposite operation to both sides.

A. $x = 10$	B. $x = 4$
C. $x = -4$	D. $x = -10$

Q 02

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

■ MEMORY POINT DISTRIBUTE first → then COMBINE like terms. Order: D→C.

A. $x + 4$	B. $x + 12$
C. $5x + 4$	D. $3x + 12$

Q 03

What is the value of -3^2 ? (Note: the negative sign is outside)

■ MEMORY POINT PARENTHESES matter: $(-3)^2 = +9$ but $-3^2 = -9$

A. 9	B. -9
C. 6	D. -6

Q 04

Evaluate: $2 + 3 \times 4 - 1$

■ MEMORY POINT PEMDAS — Multiply BEFORE you add/subtract.

A. 19	B. 13
C. 17	D. 21

Q 05

A car travels 120 miles in 2 hours. At the same rate, how many miles will it travel in 5 hours?

■ MEMORY POINT UNIT RATE first: miles \div hours. Then \times new time.

A. 240 miles	B. 280 miles
C. 300 miles	D. 360 miles

Q 06

Solve: $-2x < 8$. What is the correct answer?

■ MEMORY POINT FLIP the inequality sign when dividing by a negative number.

A. $x < -4$	B. $x > 4$
C. $x > -4$	D. $x < 4$

Q 07

What is $3/4 + 2/3$?

■ MEMORY POINT LCD — Least Common Denominator. Find common bottom, add tops. Never add denominators!

A. $7/12$	B. $5/7$
C. $17/12$	D. $9/8$

Q 08

A shirt costs \$40. It is on sale for 25% off. What is the sale price?

■ MEMORY POINT PERCENT → DECIMAL ($\div 100$). Sale price = Original \times (1 – rate).

A. \$10	B. \$25
C. \$30	D. \$35

Q 09

Evaluate: $(-4) \times (-3) + (-5)$

■ MEMORY POINT SIGN RULES: $(-) \times (-) = (+)$. Same signs → positive.

A. -17	B. 7
C. 17	D. -7

Q 10

Solve for x: $2x - 5 = 11$

■ MEMORY POINT TWO-STEP rule: ① undo add/subtract first, ② then undo multiply/divide.

A. $x = 3$	B. $x = 8$
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C. $x = 6$	D. $x = 16$
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SECTION 2 — GEOMETRY

Q 11

Two angles of a triangle are 55° and 70° . What is the third angle?

<p>■ MEMORY POINT</p>	<p>TRIANGLE SUM = 180°. Add known angles, subtract from 180.</p>
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A. 45°	B. 55°
C. 65°	D. 75°

Q 12

A rectangle has length 9 cm and width 4 cm. What is its AREA?

<p>■ MEMORY POINT</p>	<p>AREA = multiply (\times). PERIMETER = add all sides. Area = $l \times w$.</p>
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A. 26 cm	B. 36 cm^2
C. 26 cm^2	D. 13 cm^2

Q 13

A right triangle has legs of 3 and 4. What is the length of the hypotenuse?

<p>■ MEMORY POINT</p>	<p>$a^2 + b^2 = c^2$ — c is the hypotenuse. Memorize: 3-4-5 triangle!</p>
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A. 5	B. 7
C. $\sqrt{7}$	D. 25

Q 14

A circle has a radius of 6 cm. What is its CIRCUMFERENCE? (Use $\pi \approx 3.14$)

<p>■ MEMORY POINT</p>	<p>$C = 2\pi r$ (circumference). $A = \pi r^2$ (area). Confusing these is the #1 circle error.</p>
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A. 113.04 cm^2	B. 18.84 cm
C. 37.68 cm	D. 75.36 cm^2

Q 15

Angles A and B are supplementary. Angle A = 112° . What is angle B?

<p>■ MEMORY POINT</p>	<p>SUPPLEMENTARY = 180°. COMPLEMENTARY = 90°. S comes before C, $180 > 90$.</p>
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A. 22°	B. 68°
C. 90°	D. 248°

Q 16

A triangle has a base of 10 cm and a height of 6 cm. What is its area?

■ MEMORY
POINT

$A = \frac{1}{2} \times b \times h$ — triangle is HALF a rectangle. Always divide by 2!

A. 60 cm ²	B. 30 cm ²
C. 32 cm ²	D. 16 cm ²

Q 17

A rectangular box has length 5, width 3, and height 4. What is its volume?

■ MEMORY
POINT

$V = l \times w \times h$ for a rectangular prism. Multiply all 3 dimensions. Units = units³.

A. 47 units ³	B. 60 units ²
C. 60 units ³	D. 94 units ²

Q 18

Two parallel lines are cut by a transversal. One angle is 65°. What is its alternate interior angle?

■ MEMORY
POINT

Z-shape = ALTERNATE INTERIOR = EQUAL. F-shape = CORRESPONDING = EQUAL.

A. 25°	B. 115°
C. 65°	D. 90°

Q 19

A circle has a diameter of 14 cm. What is the area? (Use $\pi \approx 3.14$)

■ MEMORY
POINT

$r = d \div 2$. Always halve diameter before using $A = \pi r^2$. Using d instead of r is a top mistake.

A. 615.44 cm ²	B. 153.86 cm ²
C. 43.96 cm ²	D. 87.92 cm ²

Q 20

What is the sum of interior angles of a HEXAGON (6-sided polygon)?

■ MEMORY
POINT

Sum = $(n - 2) \times 180^\circ$. Triangle = $(3 - 2) \times 180 = 180^\circ$. Square = $(4 - 2) \times 180 = 360^\circ$.

A. 540°	B. 720°
C. 1080°	D. 900°

ANSWER KEY

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	B	4	B	5	C
6	C	7	C	8	C	9	B	10	B
11	B	12	B	13	A	14	C	15	B
16	B	17	C	18	C	19	B	20	B