Algebra 1 & Geometry

Print Worksheet · 20 Questions · Answer Key on Last Page

SECTION A — ALGEBRA 1

Topics: Linear Functions · Linear Equations · Inequalities

MEMORY KEY	Slope = rise / run = (y2-y1)/(x2-x1) | y = mx + b (m = slope, b = y-intercept) | ISOLATE the variable | Same operation BOTH sides

Key words: slope=rise/run | y=mx+b | isolate | balance | flip sign when x or / negative

Q1 [Linear Functions – Slope]

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

(A) 1
(B) 2
(C) 4
(D) 1/2

Q2 [Linear Functions – Slope-Intercept Form]

A line has equation y = -3x + 7. Which statement is TRUE?

(A) slope = 7, y-intercept = -3
(B) slope = 3, y-intercept = 7
(C) slope = -3, y-intercept = 7
(D) slope = -3, y-intercept = -7

Q3 [Linear Functions – Writing Equations]

A line passes through (0, 4) with slope -2. What is its equation?

(A) y = 2x + 4
(B) y = -2x + 4
(C) y = -2x - 4
(D) y = 4x - 2

— Unit 2 · Linear Equations —

Q4 [Equations – One Step]

Solve for x: 3x - 8 = 16

(A) x = 6
(B) x = 8
(C) x = 16/3
(D) x = 2 2/3

Q5 [Equations – Distributive Property]

Solve for x: 2(x + 5) = 18

(A) x = 9
(B) x = 4
(C) x = 14
(D) x = 6.5

Q6 [Equations – Variables on Both Sides]

Solve for x: 5x - 3 = 2x + 9

(A) x = 2
(B) x = 4
(C) x = 6
(D) x = 3

— Unit 3 · Inequalities —

MEMORY KEY	FLIP the inequality sign when multiplying or dividing by a NEGATIVE number! | > or < = open circle | >= or <= = closed circle

Key words: flip when neg | open vs closed circle | shade the solution side

Q7 [Inequalities – Flip Rule]

Solve: -4x + 2 > 10

(A) x > -2
(B) x < -2
(C) x < 2
(D) x > -3

Q8 [Inequalities – Word Problem]

Tom wants to spend at most $40 on books ($6 each). He already has $4. Which inequality shows the max number of books n he can buy?

(A) 6n > 40
(B) 6n <= 40
(C) 4 + 6n <= 40
(D) 6n - 4 <= 40

Q9 [Inequalities – Number Line]

The solution to an inequality is x >= 3. Which description is correct on a number line?

(A) Open circle at 3, shade left
(B) Closed circle at 3, shade left
(C) Open circle at 3, shade right
(D) Closed circle at 3, shade right

Q10 [Linear Equations – Fractions]

Solve for x: (x/2) + 3 = 7

(A) x = 2
(B) x = 8
(C) x = 14
(D) x = 4

SECTION B — GEOMETRY

Topics: Triangles · Polygons · Circles

MEMORY KEY	Triangle angles sum = 180 | Exterior angle = sum of 2 remote interior angles | Pythagorean: a^2 + b^2 = c^2

Key words: angle sum=180 | exterior=2 remote interior | a2+b2=c2 | c=hypotenuse

Q11 [Triangles – Angle Sum]

A triangle has angles of 52 degrees and 73 degrees. What is the third angle?

(A) 45 degrees
(B) 55 degrees
(C) 35 degrees
(D) 65 degrees

Q12 [Triangles – Pythagorean Theorem]

A right triangle has legs of 6 and 8. What is the length of the hypotenuse?

(A) 14
(B) 10
(C) 100
(D) sqrt(14)

Q13 [Triangles – Exterior Angle]

Two interior angles of a triangle are 40 degrees and 65 degrees. What is the measure of the exterior angle at the third vertex?

(A) 75 degrees
(B) 105 degrees
(C) 180 degrees
(D) 115 degrees

— Unit 5 · Polygons —

MEMORY KEY	Interior angle sum = (n-2) x 180 | Each angle of regular polygon = sum / n | All exterior angles = 360

Key words: (n-2)x180 | n = sides | exterior sum=360 | regular=all equal

Q14 [Polygons – Interior Angle Sum]

What is the sum of interior angles of a hexagon (6 sides)?

(A) 540 degrees
(B) 720 degrees
(C) 1080 degrees
(D) 900 degrees

Q15 [Polygons – Regular Polygon]

Each interior angle of a regular octagon (8 sides) measures how many degrees?

(A) 120 degrees
(B) 135 degrees
(C) 140 degrees
(D) 45 degrees

Q16 [Polygons – Triangle Area]

A rectangle is 12 cm x 5 cm. A diagonal divides it into two triangles. What is the area of one triangle?

(A) 60 cm2
(B) 30 cm2
(C) 17 cm2
(D) 34 cm2

MEMORY KEY	Circumference = 2 x pi x r = pi x d | Area = pi x r^2 | r = radius, d = diameter = 2r

Key words: C=2pir | A=pir2 | diameter=2r | pi~3.14

Q17 [Circles – Circumference]

A circle has diameter 10 cm. What is its circumference? (pi = 3.14)

(A) 62.8 cm
(B) 31.4 cm
(C) 78.5 cm
(D) 15.7 cm

Q18 [Circles – Area]

A circle has radius 7 cm. What is its area? (pi = 3.14)

(A) 615.44 cm2
(B) 153.86 cm2
(C) 43.96 cm2
(D) 21.98 cm2

Q19 [Circles – Arc Length]

A circle has circumference 40pi cm. A central angle of 90 degrees intercepts an arc. What is the length of that arc?

(A) 20pi cm
(B) 10pi cm
(C) 40pi/3 cm
(D) 90pi cm

Q20 [Circles – Inscribed Angle Theorem]

An inscribed angle intercepts an arc of 120 degrees. What is the measure of the inscribed angle?

(A) 120 degrees
(B) 60 degrees
(C) 40 degrees
(D) 240 degrees

ANSWER KEY

Q1 B — slope = 2	**Q11** B — 55 degrees (180 - 52 - 73 = 55)
Q2 C — slope = -3, y-intercept = 7	**Q12** B — 10 (6^2 + 8^2 = 100, sqrt(100) = 10)
Q3 B — y = -2x + 4	**Q13** B — 105 degrees (40 + 65 = 105)
Q4 B — x = 8	**Q14** B — 720 degrees ((6-2) x 180 = 720)
Q5 B — x = 4	**Q15** B — 135 degrees (1080 / 8 = 135)
Q6 B — x = 4	**Q16** B — 30 cm2 (1/2 x 12 x 5 = 30)
Q7 B — x < -2 (flip sign when dividing by negative!)	**Q17** B — 31.4 cm (3.14 x 10 = 31.4)
Q8 C — 4 + 6n <= 40	**Q18** B — 153.86 cm2 (3.14 x 49 = 153.86)
Q9 D — Closed circle at 3, shade right	**Q19** B — 10pi cm (90/360 x 40pi = 10pi)
Q10 B — x = 8	**Q20** B — 60 degrees (1/2 x 120 = 60)