ACT Math Formula Flashcards

Visual Guide:

Question (Front)	Answer (Back)

Cut →

← Cut

Fold
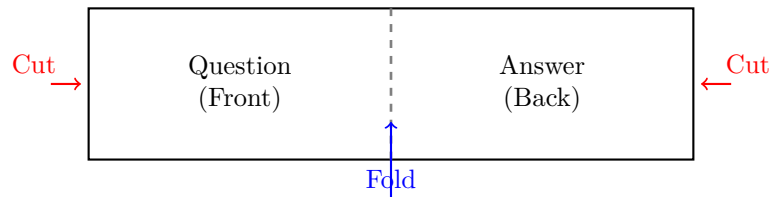
Scroll down to begin.

Slope Formula

(Front)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

"Rise over Run"

Slope-Intercept Form

(Front)

$$y = mx + b$$

- $m = \text{Slope}$
- $b = y\text{-intercept}$

Distance Formula

(Front)

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

(Based on Pythagorean Theorem)

Midpoint Formula

(Front)

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

(Average the x's, Average the y's)

The Quadratic Formula

(Front)

For $ax^2 + bx + c = 0$:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The Discriminant

(Front)

$$D = b^2 - 4ac$$

- Positive (+): 2 Real Solutions
- Zero (0): 1 Real Solution
- Negative (−): 2 Imaginary Solutions

Difference of Squares

(Front)

Pattern:

$$a^2 - b^2 = (a + b)(a - b)$$

Example:

$$x^2 - 9 = (x + 3)(x - 3)$$

Logarithm Definition

(Front)

Convert Log to Exponent:

$$\log_b(x) = y \iff b^y = x$$

Example: $\log_2(8) = 3 \iff 2^3 = 8$

Pythagorean Theorem

(Front)

For Right Triangles Only:

$$a^2 + b^2 = c^2$$

c must be the **Hypotenuse** (longest side).

Circle Area & Circumference

(Front)

Area:

$$A = \pi r^2$$

Circumference:

$$C = 2\pi r \quad \text{or} \quad C = \pi d$$

Equation of a Circle

(Front)

$$(x - h)^2 + (y - k)^2 = r^2$$

- Center: (h, k)
- Radius: r

Area of a Trapezoid

(Front)

$$A = \frac{b_1 + b_2}{2} \cdot h$$

(Average of the bases $\times$ height)

SOH CAH TOA

(Front)

$$\sin = \frac{\text{Opp}}{\text{Hyp}}$$

$$\cos = \frac{\text{Adj}}{\text{Hyp}}$$
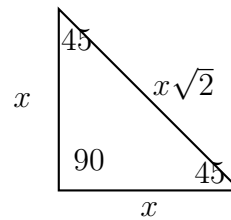
$$\tan = \frac{\text{Opp}}{\text{Adj}}$$

Trig Pythagorean Identity

(Front)

$$\sin^2(\theta) + \cos^2(\theta) = 1$$

Special Right Triangle (45-45-90)

(Front)

45, x, $x\sqrt{2}$, 90, 45, x

$$\text{Hypotenuse} = \text{Leg} \cdot \sqrt{2}$$

Special Right Triangle (30-60-90)

(Front)

$$\text{Hypotenuse} = 2 \cdot \text{Short}$$
$$\text{Long Leg} = \text{Short} \cdot \sqrt{3}$$

60, $2x$, x (short), 30, $x\sqrt{3}$