

ALGEBRA II

Get Ready for Algebra II?

Simply open **Photomath** on your phone and scan the problems below to see what you'll be learning this coming semester.

Logarithmic and exponential functions

$$\log_3 3$$

$$3^{\log_9 25}$$

$$\log_6 36$$

$$5^{\log_5 10}$$

$$\log_{0.2} 25$$

$$\left(\frac{1}{3}\right)^{-2 - \log_9 25}$$

$$\log 0.0001$$

$$2 \log_5 \sqrt{5} + 3 \log_2 8$$

$$\log_5 2 + \log_5 2.5$$

$$\log_3 8 \cdot \log_8 9$$

$$3 \log_3 \sqrt[3]{3} - 2 \log_2 \sqrt{2}$$

Exponential and logarithmic equations

$$\log_4 x = -2$$

$$\frac{100}{1+e^{-x}} = 0.5$$

$$3^{3x-4} = 9^{2x-3}$$

$$25^{x-1} \cdot 2^{2x+1} - 8 = 0$$

$$\log_3 (3^x - 8) = 2 - x$$

$$\frac{e^x}{e^x - 4} = 3$$

$$9^x - 3^{x+1} = 4$$

$$2^{x^2+4x+5} = 2$$

Exponential and logarithmic inequalities

$$8^{\frac{4}{5}x-3} < 8^{-7x}$$

$$\frac{3^x}{3^x - 1} - \frac{1}{3^x + 1} \leq 0$$

$$\log_{\frac{1}{3}} (x - 1) > 1$$

$$81^{3-x} < \left(\frac{1}{3}\right)^{5x-6}$$

$$3^x + 3^{x+1} > \frac{4}{9}$$

$$\frac{x+5}{2x+6} \geq 0$$

$$\log_{\frac{1}{2}} \left(\frac{3-2x}{x}\right) < 0$$

$$25^x < 65^x$$

Complex systems of equations

$$\begin{cases} x^2 + y^2 - 16x + 39 = 0 \\ x^2 - y^2 - 9 = 0 \end{cases}$$

$$\begin{cases} y = |x + 1| \\ y = x - 2 \end{cases}$$

$$\begin{cases} x^2 + y^2 = 5 \\ xy = 2 \end{cases}$$

$$\begin{cases} \log_{10}(x) + \log_{10}(y) = 3 \\ \log_{10}(x) - \log_{10}(y) = 1 \end{cases}$$

$$\begin{cases} \frac{4}{x} + \frac{6}{y} = 0 \\ \frac{3}{x} - \frac{4}{y} = -2\frac{5}{6} \end{cases}$$

$$\begin{cases} \log_2(x) + \log_4(y) = 4 \\ 3^{(x^2)} = 9 \cdot 3^{(15y+2)} \end{cases}$$

$$\begin{cases} 1 - 4^{(x-y)} = 0 \\ x^2 + 2x + 1 = 0 \end{cases}$$

Irrational equations

$$\sqrt{x} = 9$$

$$\sqrt{3x-1} = \sqrt{2x+4}$$

$$\sqrt{2x + \sqrt{3x+1}} = 2$$

$$\frac{\sqrt{x}-1}{x-1} = 1 - \frac{1}{\sqrt{x}+1}$$

$$\sqrt{11x+3} - \sqrt{2-x} = \sqrt{9x+7} - \sqrt{x-2}$$

$$\sqrt{3x-1} - \sqrt{x+1} = \sqrt{2x+1} - \sqrt{2x-1}$$

Irrational inequalities

$$\sqrt{2x + \sqrt{3x+1}} = 2$$

$$\sqrt{\sqrt{x}} \leq \sqrt{x}$$

$$\sqrt{1-2x} < \sqrt{4-x}$$

$$\sqrt{4x^2 + 2x + 1} - \sqrt{x-1} \geq 0$$

$$\frac{x-5}{\sqrt{x+1}} \geq 0$$

$$\sqrt{6x+6} \geq \sqrt{3x} + \sqrt{3}$$

Binomial coefficient

$$\binom{7}{3}$$

$$\binom{n+1}{3}$$

$$\binom{10}{6} \cdot \binom{10}{5} - \binom{10}{5}$$

$$\binom{100}{97} + \binom{100}{98}$$

Complex numbers

$$(8 + 3i) - (7 + 5i)$$

$$(5 + i)(8 + i)$$

$$\frac{(1 + 3i)}{(7 - 2i)}$$

$$|3 + 11i|$$

$$i^{51}$$

$$\left| \frac{(2 + i)}{(3 + 4i)} \right|$$

$$i^{(-2)}$$

$$(2 + 3i)^3$$

For this type of problem you can calculate or convert: Complex conjugate, Modulus, Real and the Imaginary parts

$$4 + 3i$$