

Use exact values, for example, π NOT 3.14159 and $\sqrt{2}$ NOT 1.414. Simplify your answer and rationalize the denominator.

- _____ Find the equation in slope-intercept form of the line that passes through the point $(2, -2)$ and is perpendicular to the line $2x - 3y = 7$.
- _____ What is the coefficient of x^3y^9 in the expansion of $(x - 2y)^{12}$?
- _____ Find the domain of the function $f(x) = \frac{\sqrt{x^2 - 25}}{x - 7}$.
- _____ Solve the inequality $3\left|\frac{1}{3}x - 3\right| < 6$.
- _____ Write $\frac{1 - 3i}{2 + 3i}$ in the form $a + bi$.
- _____ Write the following *without* negative exponents $\left(\frac{4a^2b^{-4}c^3}{2^{-3}a^{-6}b^4c}\right)^{-2}$
- _____ Solve for x : $2x - \sqrt{x + 2} = 2$
- _____ Simplify: $\frac{\frac{x}{y^2} - \frac{y}{x^2}}{\frac{1}{y} - \frac{1}{x}}$.
- _____ Solve the following system of equations for (x, y) .
$$\begin{cases} \frac{3}{4}x - \frac{4}{3}y = 1 \\ \frac{3}{2}x - \frac{2}{3}y = 1 \end{cases}$$
- _____ Find the vertex of the parabola $y = 4x^2 - 18x + 23$.
- _____ Solve for x : $\log_6(x + 6) = \log_6(x^2 - 36) - \log_6(35)$.
- _____ Let $f(t) = 2t^3 - 1$ and $g(u) = u - 1$. Find $(f \circ g)(u)$.