



Try these problems before watching the lesson.

1. Expand the product $(x + 2)(x - 7)$.
2. Find the value of k for which $kx^2 - 5x - 12 = 0$ has solutions $x = 3$ and $x = -\frac{4}{3}$.
3. What is the value of $4^{10} \times 8^{20}$? Express your answer in the form a^b , where a and b are positive integers such that a is the least possible positive integer.
4. If $b(b^4 \cdot b^3)^2 = b^{3x}$, what is the value of x ?

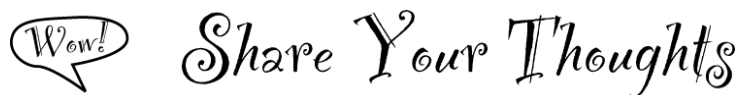


First Problem: If $(x^2 + 3x + 6)(x^2 + ax + b) = x^4 + mx^2 + n$ for integers a, b, m and n , what is the product of m and n ?

Second Problem: If x is a number such that $3^x + 3^{x+2} = 9^x + 9^{x+2}$, then what is the value of 3^x ?



5. Find $a^2 + \frac{1}{a^2}$ if $a + \frac{1}{a} = 3$.
6. If r is a solution of the equation $x^2 + 11x - 19 = 0$, what is the value of $(r + 5)(r + 6)$?
7. Solve for x : $\left(\frac{1}{4}\right)^{2x+8} = (16)^{2x+5}$.
8. Find all values of x such that $4^x = 33 \cdot 2^{x-1} - 8$.



Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).