

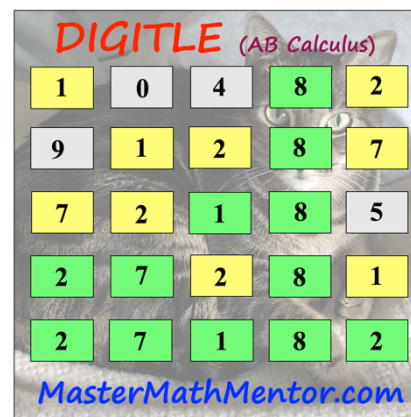
DIGITLE – SAT/ACT

Puzzle 505 – Rational Expressions/Polynomials

Directions: The first 5 problems have single digit answers. The 6th problem has a 5-digit answer (counting leading zeros if present). You have a choice: solve the easier single-digit answer problems or tackle the more difficult 5-digit answer. Once you have done that, attempt to solve the puzzle by entering the following url on your computer, tablet, or phone:

<https://mastermathmentor.com/mmm/digitle.ashx>.

The correct puzzle answer will be the digits of your answer(s) scrambled. Use the following interpretation. You get 6 tries.



Green: the digit is in the answer and is in the correct spot.

Yellow: the digit is in the answer but is not in the correct spot.

Grey: the digit is not in the answer.

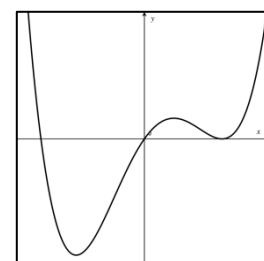
Single Digit Answers:

1) $\frac{x^2 + 2x - 11}{x - 3}$ is expressed in the form $Ax + B + \frac{C}{x - 3}$. What is the value of C ?

2) $\frac{1}{\frac{2}{x-2} - \frac{3}{x+2}}$ is placed in the form $\frac{Ax^2 - B}{Cx + D}$, what is the value of $D - (A + B + C)$?

3) What is the product of the roots of $y = x^3 + 4x^2 - x - 4$?

4) Given the given graph of a quartic equation, find the difference between the total number of roots and the total number of distinct roots.



5) If the expression $\frac{x^3 + x^2}{x^4 + 2x^3 + x^2}$ is reduced to an expression in the form $\frac{A}{Bx + C}$, find the value of $A + B + C$.

5-Digit Answer:

6) $\frac{8x+3}{2x+5} - \frac{3x+1}{3x-2} - \frac{1}{4}$ is expressed in the form $\frac{Ax^2 + Bx + C}{Dx^2 + Ex + F}$. Find the value of number $A(D + E - B - C - F)$.