

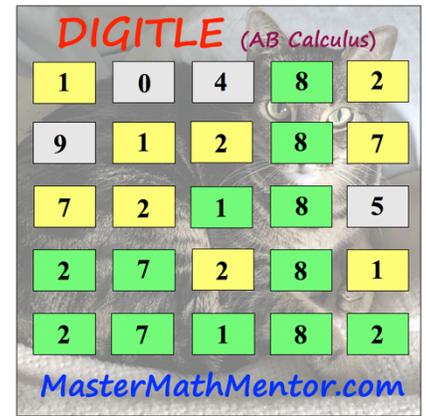
DIGITLE – SAT/ACT

Puzzle 502 – Linear Equations & Inequalities

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) How many integers satisfy the following inequality? $3 \leq 3x - 1 < 16$?
- 2) Point $(a, 6)$ lies on the line $x - \frac{2y}{3} + 1 = 0$. Using the equation of the line perpendicular to the given line passing through $(a, 6)$, find the y -value when $x = 3$.
- 3) Given the equation $y \leq 2x$, $x = 2$, and the x -axis, what is the area of the region bounded by those lines?
- 4) Ralph mows grass at a rate of $300 \text{ ft}^2/\text{minute}$. He mowed 400 ft^2 and wants to mow at least 900 ft^2 before his morning break. What is the minimum number of whole minutes he needs to complete the task?
- 5) Given the points $(2, -1)$ and $(-5, -7)$ and the equation of the line $7y - 6x + 21 = 0$, what is the difference between the slopes of the lines?

5-Digit Answer:

- 6) Given line $f: 3x + 5y - 60 = 0$, if line g is perpendicular to f at the point $(a, 3)$ and each line is placed in the form $Ax + By = C$ with $A > 0$, what is the product of $A + B + C$ in line f times $A + B + C$ in line g ?