

DIGITLE – SAT/ACT

Puzzle 516 – Trigonometry / Pythagorean Thm

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) A cylinder has a circumference of 16.328 inches and a height of 6 inches. What is the longest line that can be draw from the top of the cylinder to the bottom (rounded to the nearest integer) ?
- 2) If $\cos(54^\circ + 2x^\circ) = \sin 4x^\circ$, find the value of x .
- 3) Find the value of $4 \sin 60^\circ \cos 30^\circ (\tan 45^\circ)^2$
- 4) Find the value of $\frac{3 \cos^2 180^\circ - (3 \cos 0^\circ)^2}{-6 \sin 90^\circ - 5 \tan 180^\circ}$.
- 5) Given the function $y = 3 \sin(\pi x + \pi^2)$, find the period of its graph.

5-Digit Answer:

- 6) Two weather stations sight a weather balloon that is 3.5 miles high. Station A is west of the balloon and sights the balloon at an angle of elevation of 77° while station B is east of the balloon and sights the balloon at an angle of elevation of 63° . Find the distance between the two stations rounded to the nearest foot.

