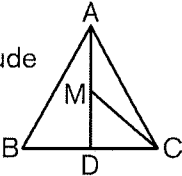




# Warm-Up 9

141. \_\_\_\_\_ Let  $f(x) = 3x^2 - 7$  and  $g(x) = 2x + 5$ . What is the absolute difference between  $f(g(-2))$  and  $g(f(-2))$ ?
142. \_\_\_\_\_ What is the value of  $1 - 2 + 3 - 4 + 5 - 6 + \dots + 2013 - 2014 + 2015$ ?
143. \_\_\_\_\_ miles Ted and Fred are 60 miles apart and moving toward each other. A carrier pigeon flies back and forth between Ted and Fred without stopping until they meet. If Ted and Fred each maintain a constant speed of 30 mi/h and the pigeon maintains a constant speed of 45 mi/h, what is the total number of miles the pigeon will have flown when Ted and Fred meet?
144. \_\_\_\_\_ For 12 base  $x$ , written  $12_x$ , what is the value of  $x$  if  $12_x = 3(11_3)$ ?
145. \_\_\_\_\_ quadrilaterals How many different quadrilaterals have vertices with integer coordinates  $(x, y)$  such that  $0 \leq x \leq 2$  and  $0 \leq y \leq 2$ ?
146. \_\_\_\_\_ Equilateral triangle ABC has side length 6 units, and M is the midpoint of altitude AD. The length of segment MC expressed as a common fraction in simplest radical form is  $\frac{a\sqrt{b}}{c}$  units, where  $a$ ,  $b$  and  $c$  are integers. What is the value of  $a + b + c$ ?
- 
147. \_\_\_\_\_ The perimeter of square A is 28 feet less than the perimeter of square B. The area of square A is 161 square feet less than the area of square B. If  $x$  and  $y$  are the side lengths of square A and square B, respectively, what is the value of  $x + y$ ?
148. \_\_\_\_\_ pairings In a certain game, each move consists of pairing tiles of equal value to create a new tile with double the value. For example, a pair of 4-tiles combine to make an 8-tile. Given an unlimited supply of 2-tiles, what is the minimum number of pairings needed to build a tile with a value of 32?
149. \_\_\_\_\_ The absolute difference between the mean and median of five distinct positive integers is at least 2. If the five integers are 3, 22, 7, 12 and  $x$ , with 3 and 22 being the least and greatest values, respectively, what is the sum of all possible values of  $x$ ?
150. \_\_\_\_\_ integers A positive integer  $k$  is said to be *divisive* if  $k > 10$ , all digits of  $k$  are nonzero and each digit of  $k$ , except the units digit, is a proper divisor (any factor of the number except the number itself) of the digit to its immediate right. Based on this, how many positive integers are divisive?