

AMC 12/AHSME

2007

- [9] Yan is somewhere between his home and the stadium. To get to the stadium he can walk directly to the stadium, or else he can walk home and then ride his bicycle to the stadium. He rides 7 times as fast as he walks, and both choices require the same amount of time. What is the ratio of Yan's distance from his home to his distance from the stadium?
- (A) $\frac{2}{3}$ (B) $\frac{3}{4}$ (C) $\frac{4}{5}$ (D) $\frac{5}{6}$ (E) $\frac{6}{7}$
- [10] A triangle with side lengths in the ratio $3 : 4 : 5$ is inscribed in a circle of radius 3. What is the area of the triangle?
- (A) 8.64 (B) 12 (C) 5π (D) 17.28 (E) 18
- [11] A finite sequence of three-digit integers has the property that the tens and units digits of each term are, respectively, the hundreds and tens digits of the next term, and the tens and units digits of the last term are, respectively, the hundreds and tens digits of the first term. For example, such a sequence might begin with the terms 247, 275, and 756 and end with the term 824. Let S be the sum of all the terms in the sequence. What is the largest prime factor that always divides S ?
- (A) 3 (B) 7 (C) 13 (D) 37 (E) 43
- [12] Integers a , b , c , and d , not necessarily distinct, are chosen independently and at random from 0 to 2007, inclusive. What is the probability that $ad - bc$ is even?
- (A) $\frac{3}{8}$ (B) $\frac{7}{16}$ (C) $\frac{1}{2}$ (D) $\frac{9}{16}$ (E) $\frac{5}{8}$
- [13] A piece of cheese is located at $(12, 10)$ in a coordinate plane. A mouse is at $(4, -2)$ and is running up the line $y = -5x + 18$. At the point (a, b) the mouse starts getting farther from the cheese rather than closer to it. What is $a + b$?
- (A) 6 (B) 10 (C) 14 (D) 18 (E) 22
- [14] Let a , b , c , d , and e be distinct integers such that

$$(6 - a)(6 - b)(6 - c)(6 - d)(6 - e) = 45.$$

What is $a + b + c + d + e$?

- (A) 5 (B) 17 (C) 25 (D) 27 (E) 30
- [15] The set $\{3, 6, 9, 10\}$ is augmented by a fifth element n , not equal to any of the other four. The median of the resulting set is equal to its mean. What is the sum of all possible values of n ?
- (A) 7 (B) 9 (C) 19 (D) 24 (E) 26