

QUADRATICS

- 2006A 11. Which of the following describes the graph of the equation $(x + y)^2 = x^2 + y^2$?
- (A) the empty set (B) one point (C) two lines (D) a circle
(E) the entire plane

- 2013B 11. Real numbers x and y satisfy the equation $x^2 + y^2 = 10x - 6y - 34$. What is $x + y$?
- (A) 1 (B) 2 (C) 3 (D) 6 (E) 8

- 2002B 12. For which of the following values of k does the equation $\frac{x-1}{x-2} = \frac{x-k}{x-6}$ have no solution for x ?
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

- 2015A 12. Points $(\sqrt{\pi}, a)$ and $(\sqrt{\pi}, b)$ are distinct points on the graph of $y^2 + x^4 = 2x^2y + 1$. What is $|a - b|$?
- (A) 1 (B) $\frac{\pi}{2}$ (C) 2 (D) $\sqrt{1 + \pi}$ (E) $1 + \sqrt{\pi}$

- 2006B 14. Let a and b be the roots of the equation $x^2 - mx + 2 = 0$. Suppose that $a + (1/b)$ and $b + (1/a)$ are the roots of the equation $x^2 - px + q = 0$. What is q ?
- (A) $\frac{5}{2}$ (B) $\frac{7}{2}$ (C) 4 (D) $\frac{9}{2}$ (E) 8

- 2002A 14. Both roots of the quadratic equation $x^2 - 63x + k = 0$ are prime numbers. The number of possible values of k is
- (A) 0 (B) 1 (C) 2 (D) 4 (E) more than four

- 2015B 14. Let a , b , and c be three distinct one-digit numbers. What is the maximum value of the sum of the roots of the equation $(x - a)(x - b) + (x - b)(x - c) = 0$?
- (A) 15 (B) 15.5 (C) 16 (D) 16.5 (E) 17