

¶ 1. If x and y are two numbers such that $x + y = 35$ and $xy = 5$, then the value of $\frac{1}{x} + \frac{1}{y}$ is
(A) 7 (B) 40 (C) $\frac{1}{7}$ (D) 30 (E) cannot be determined

¶ 2. The value of the sum

$$1 - 2 + 3 - 4 + 5 - 6 + \dots + 997 - 998 + 999 - 1000$$

is

(A) -500 (B) -1000 (C) -499 (D) -1001 (E) -501

¶ 3. Francesca uses 100 grams of lemon juice, 100 grams of sugar, and 400 grams of water to make lemonade. There are 25 calories in 100 grams of lemon juice and 386 calories in 100 grams of sugar. Water contains no calories. How many calories are in 200 grams of her lemonade?

(A) 129 (B) 137 (C) 174 (D) 223 (E) 311

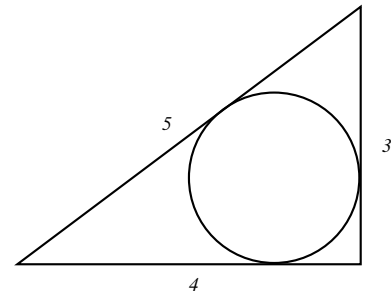
¶ 4. A grocer stacks oranges in a pyramid-like stack whose rectangular base is 5 oranges by 8 oranges. Each orange above the first level rests in a pocket formed by four oranges in the level below. The stack is completed by a single row of oranges. How many oranges are in the stack?

(A) 96 (B) 98 (C) 100 (D) 101 (E) 134

¶ 5. Which of the numbers below is the greatest?

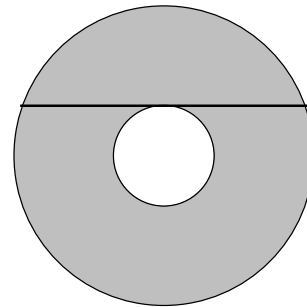
(A) 6^{100} (B) 5^{200} (C) 4^{300} (D) 3^{400} (E) 2^{500}

¶ 6. A circle is inscribed in a 3-4-5 right triangle, as shown in the figure below. What is the radius of the circle?



(A) 1 (B) $\frac{\sqrt{3}}{2}$ (C) $\sqrt{3}$ (D) $\frac{4}{3}$ (E) $\frac{2}{5}$

¶ 7. The gray region below is enclosed by two concentric circles. The chord shown is tangent to the inner circle and has length 12. What is the area of the gray region between the two circles?



(A) 24π (B) 32π (C) 36π (D) 40π (E) 48π