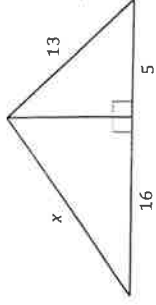


Sixth Grade Written Exam

2023 Vestavia Hills High School Math Tournament

1. What is the smaller angle formed by the hands of a clock at 3:00, measured in degrees?
A. 90 B. 270 C. 180 D. 45 E. NOTA

2. Find the value of x .

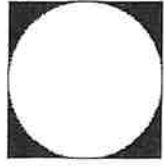


- A. 12 B. 15 C. 18 D. 20 E. NOTA

3. The sum of three consecutive integers is 2046. What is the sum of the digits of the largest of the three integers?

- A. 16 B. 17 C. 18 D. 29 E. NOTA

4. A circle with diameter 4 is inscribed in a square. Find the area outside the circle but inside the square.



- A. 16 B. $16 - 2\pi$ C. 4π
D. $16 - 4\pi$ E. NOTA

5. If $2x + 12 = 40$, find the value of $x + 6$.

- A. 16 B. 23 C. 20 D. 25 E. NOTA

6. Aleena paints the exterior of a $3 \times 3 \times 3$ cube with red paint, then breaks it apart into $27 1 \times 1 \times 1$ cubes. How many cubes have at least one side painted red?

- A. 26 B. 24 C. 23 D. 20 E. NOTA

7. Jeffrey deposits \$2023 into a bank account that earns 50% simple interest per year. How much money will be in the account after 8 years?

- A. \$10,110.50 B. \$10,510.00 C. \$8092.00 D. \$10,115.00 E. NOTA

8. Find the base-10 representation of $11110_2 + 101_2$.

- A. 19 B. 13 C. 17 D. 15 E. NOTA

9. Timothy has 5 cows but wants to convert them to ducks so he can pay off his debt to Daniel. Timothy knows that a cow equals two goats, two ducks equals one lamb, and one goat equals 3 lambs. What is the maximum number of ducks that Timothy can get?

- A. 15 B. 30 C. 20 D. 60 E. NOTA

10. On the first day of his new job, Sriram earns \$3 for mowing a lawn. The next day he earns \$5, and each day after that he earns \$2 more than the previous day. After 20 days, he gets fired by his boss, Parker. If 20% of his total earnings was deducted for taxes, how much did he get paid?

- A. \$402 B. \$440 C. \$352 D. \$348 E. NOTA

11. A bag of six marbles contains 3 blue marbles and 3 green marbles. Find the probability of drawing a blue marble then another blue marble, randomly and without replacement.

- A. $\frac{2}{5}$ B. $\frac{1}{5}$ C. $\frac{1}{4}$ D. $\frac{1}{6}$ E. NOTA

12. Susan won \$250 at a math tournament. She spends one fifth of her winnings on pencils and one-fourth of the remaining money on shoes. She then gives Rishab one half of what remains and $\frac{4}{15}$ of what's then remaining to Erin. How much money is Susan left with?

- A. \$20 B. \$0 C. \$75 D. \$55 E. NOTA

13. Solve for x : $2(x + 3) + 3(x + 5) = 2(x + 15)$

- A. 2 B. 3 C. 5 D. 6 E. NOTA

14. Find the shortest distance between (3, 1) and (7, 12). Radicals do not need to be simplified.

- A. $\sqrt{69}$ B. $\sqrt{137}$ C. $\sqrt{117}$ D. $\sqrt{113}$ E. NOTA