

Seventh Grade Written Test

$$1. \quad \frac{1}{24}[5(92 + 33) - 7(98 \div 14)] = ?$$

- a) 48 b) 576 c) 49 d) 24 e) NOTA

2. Three integers have a sum of 144. What is the sum of the distinct whole number factors of the largest of these integers?

- a) 48 b) 58 c) 124 d) 57 e) NOTA

3. Using $\pi = 3.14$, find the total surface area of a cone with diameter of 2 and a slant height of 3.

- a) 3.14 b) 6 c) 6.28 d) 12.56 e) NOTA

4. In how many distinguishable ways can you arrange the letters in the word GRAPH?

- a) 120 b) 3125 c) 15 d) 5 e) NOTA

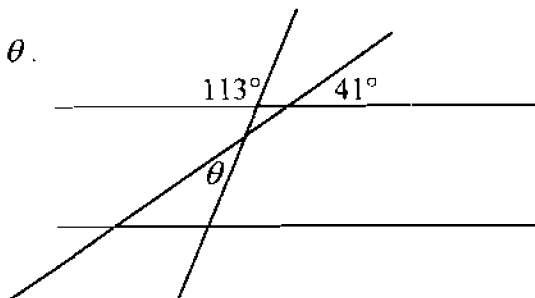
5. Disco Stu buys a shirt made of 25% rayon and 75% polyester. After the original price is discounted 35% and then a tax of 8% added, he pays \$14.05 for the shirt. What is the original price of the shirt?

- a) \$20.00 b) \$20.01 c) \$20.02 d) 20.03 e) NOTA

6. If $a*b = \frac{a+b}{a-b} + \frac{a}{b}$, then what is $2*1$?

- a) -5 b) 1 c) 5 d) 6 e) NOTA

7. Find θ .



- a) 26° b) 41° c) 67° d) 113° e) NOTA

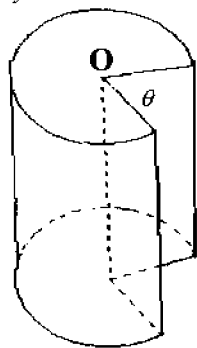
8. A number is written as 12121 in base 4. What is the number in base 6?

- a) 1413 b) 1477 c) 1515 d) 1521 e) NOTA

9. What is the prime factorization of 324?

- a) $4 \cdot 3^4$ b) $2^4 \cdot 3^2$ c) $2^2 \cdot 3^4$ d) $2^3 \cdot 3^3$ e) NOTA

10. Find the volume of this cylinder which has a slice cut out of it. Note: O is the center of the cylinder.



$$\begin{aligned}\theta &= 60^\circ \\ \text{height} &= 4 \\ \text{radius} &= 3\end{aligned}$$

- a) 20π b) 45π c) 180π d) 30π e) NOTA

11. Solve the inequality: $3(5x - 7) + 7 \leq 8 - 2(2x - 9)$

- a) $\frac{40}{19} \geq x$ b) $x \geq \frac{40}{19}$ c) $x < \frac{40}{19}$ d) $x \leq 2$ e) NOTA

12. If $x = 6$, find $\sqrt{x^2 - 4x + 4}$.

- a) 2 b) 4 c) 6 d) 8 e) NOTA

13. In a class of 50, 25 students have both brothers and sisters, 14 students have no siblings, and 8 students only have sisters. How many students only have brothers?

- a) 3 b) 25 c) 28 d) 22 e) NOTA

14. Find the reciprocal of $4 + \frac{1}{5 + \frac{1}{6}}$

- a) $\frac{130}{31}$ b) $\frac{128}{31}$ c) $\frac{31}{128}$ d) $\frac{31}{130}$ e) NOTA

15. If two cubes have a surface area ratio of 1:3. Find the ratio the smaller volume to the larger volume.

- a) 1:3 b) $1:3\sqrt{3}$ c) 1:6 d) $1:6\sqrt{3}$ e) NOTA

16. For how many integers is the following true: Its square is less than 8 times itself plus 9?

- a) 8 b) 9 c) 10 d) 11 e) NOTA

17. What is 150% of 25% of 10% of 80?

- a) 2 b) 4 c) 3 d) 1 e) NOTA

18. Mr. Quattlebaum is taking Ms. Spears to a carnival. He drives five miles north, four miles east, and seven miles north. How far is he from where he started?

- a) 16 b) $4\sqrt{10}$ c) 13 d) $\sqrt{146}$ e) NOTA

19. The sum of two numbers is 28. Their product is 187. What is the positive difference between the two numbers?

- a) 10 b) 8 c) 6 d) 4 e) NOTA

20. What is the units digit of 8^{2003} ?

- a) 8 b) 2 c) 4 d) 6 e) NOTA

21. Two fair six-sided dice are rolled simultaneously. What is the probability that both dice will show odd numbers?

- a) $\frac{1}{6}$ b) $\frac{1}{4}$ c) $\frac{3}{4}$ d) $\frac{1}{2}$ e) NOTA

22. A man has two daughters of ages 7 and 16. In four years the man's age will be half the least common multiple of his daughter's ages now. How old was the man when his second child was born?

- a) 41 b) 43 c) 45 d) 52 e) NOTA

23. Choose the correct statements:

- I. Interior angles of parallelograms are congruent.
- II. All squares are parallelograms
- III. The diagonals of a rhombus are not perpendicular.

- a) III only b) I, II only c) I, II, III only d) II only e) NOTA

24. A dog is tied to the corner of a rectangular doghouse by a 4-foot rope. The base of the doghouse is 3-foot by 2-foot. Find the area in which the dog can walk.

- a) 12π b) 13π c) 12.25π d) 13.25π e) NOTA

25. If $f(x) = 3x^3 - 25$, find $f(f(2) + 3)$

a) 350

b) 5

c) 1

d) -1

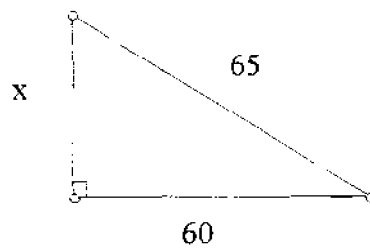
e) NOTA

TB1: Find the mean of the mean, mode, median, and range of the set of numbers:

34, 11, 1, 4, 5.3, 13, 2.7, 1

Round your answer to the nearest natural number.

TB2: Find x .



TB3: What is the total number of triangles pictured in the given figure?

