

9th Grade Number Sense

- Find the greatest common factor of the numbers: 36, 128, 240
 - 12
 - 36
 - 2
 - 8
 - Not Given
- Consider the sequence of odd integers starting at 1 and ending at 99. If you were to write out the entire sequence by hand, how many times would you write the number 6?
 - 20
 - 0
 - 10
 - 5
 - Not Given
- 90 is 45% of what number?
 - 200
 - 40.5
 - 49.5
 - $163.\overline{63}$
 - Not Given
- Which of the following sets of numbers form a Pythagorean triple?
 - 5-12-14
 - 3-4-8
 - 7-24-25
 - 16-46-48
 - 20-21-27
- Find the value of $102^2 - 101^2$
 - 204
 - 203
 - 10302
 - 406
 - Not Given
- Evaluate i^{27}
 - 1
 - i
 - $-i$
 - 1
 - Not Given
- Change the number 27 from base 10 to base 6.
 - 44
 - 43
 - 42
 - 36
 - Not Given
- Change the base 6 number 131 to a base 5 number.
 - 11
 - 55
 - 210
 - 240
 - Not Given
- Compute $6^3 - 7 - 9 \times 1$
 - 200
 - 232
 - 1000
 - 153
 - Not Given

10. Evaluate the expression $\frac{(n+2)!}{(n-1)!}$ when $n = 5$.

- a) 210 b) 840 c) 0 d) 1680 e) Not Given

11. Evaluate: $(3*8) - (9 + 6*4)$

- a) -36 b) -9 c) 57 d) 4 e) Not Given

12. Find the sum of the first 27 consecutive odd integers

- a) 676 b) 784 c) 1539 d) 729 e) Not Given

13. What is the square root of 1234321

- a) 121 b) 1111 c) 1232 d) 5432 e) Not Given

14. The set $\{4, 5, 6, x, 13\}$ has half the mean of the set $\{12, 13, (2x), 17\}$. Find the value of x .

- a) 6 b) 9 c) 7 d) 14 e) Not Given

15. The digits of a five digit number decrease in value as you read from left to right. If the thousands digit is 5 more than the hundreds digit, find the greatest possible sum of the five digits.

- a) 22 b) 23 c) 26 d) 27 e) Not given

16. Find the sum of the sequence: 1, 2, 3, ..., 35.

- a) 3050 b) 595 c) 840 d) 1190 e) Not Given

17. Evaluate and simplify: $\sqrt{252} + \sqrt{175} - \sqrt{63}$

- a) $\sqrt{448}$ b) $7\sqrt{7}$ c) $8\sqrt{7}$ d) $6\sqrt{6}$ e) Not Given

18. How many ways are there to choose two soccer team captains from a group of 18 athletes?

- a) 36 b) 153 c) 306 d) 77 e) Not Given

19. Given that $7 < x < y < x^2 < 90$ and x and y are both positive integers, find the maximum value of $x * y$.

- a) 71 b) 729 c) 504 d) 720 e) Not Given

20. Find the ones digit of $8^4 + 2^9$.

- a) 0 b) 2 c) 4 d) 6 e) Not Given

21. Which of the following answers is closest to $6.02 \times 10^{23} - 1.09 \times 10^8$

- a) 6.02×10^{15} b) 4.93×10^{23} c) 6.02×10^{23} d) 4.93×10^{15}

22. Evaluate: $7 - \frac{3-5}{15-7} \cdot (-8)^3$

- a) -121 b) 135 c) 71 d) -57 e) Not Given

23. Compute the product and given your answer in simplest terms: $\overline{0.158730} * \overline{0.7777}$

- a) $1 \frac{1}{9}$ b) $\frac{10}{81}$ c) $\frac{70}{567}$ d) $\frac{1}{9}$ e) Not Given

24. Evaluate $(-2)^{-5/2}$

- a) -32 b) 16 c) 32 d) 5 e) Not Given

25. Subtract the sum of the first 25 positive even integers from the sum of the first 25 positive odd integers.

- a) 0 b) -25 c) 25 d) -50 e) 50

26. Find the largest number that is the product of the squares of two distinct odd one-digit integers.

- a) 9801 b) 2304 c) 152 d) 3969 e) 130

27. Two balls are drawn from a bag containing 5 red balls and 7 white balls. What is the probability they are both red?

- a) $\frac{7}{22}$ b) $\frac{5}{22}$ c) $\frac{7}{33}$ d) $\frac{5}{33}$ e) Not Given

28. Evaluate $\frac{n!-(n-2)!}{(n-1)!}$ where $n = 11$

- a) $\frac{109}{10}$ b) 109 c) 1090 d) $\frac{11}{109}$ e) Not Given

29. When $x = 3$ and $y = 5$, by how much does the value of $3x^2 - 2y$ exceed the value of $2x^2 - 3y$?

- a) 4 b) 14 c) 16 d) 26 e) Not Given

30. If $a \Delta b = 2a - b$, find $(3 \Delta 4) \Delta 5$?

- a) -3 b) -1 c) 1 d) 3 e) Not Given

31. What is the value of $\frac{5^{1003} - 5^{1000}}{5^{999}}$?

- a) 3/999 b) 125 c) 620 d) 625 e) Not Given

32. Which of the following lists the numbers from smallest to largest?

a) $-3.5, -\pi, -\sqrt{8}, -3.\overline{11}, -2$

b) $-\sqrt{8}, -3.5, -3.\overline{11}, -\pi, -2$

c) $-3.5, -\sqrt{8}, -\pi, -3.\overline{11}, -2$

d) $-3.5, -\pi, -3.\overline{11}, -\sqrt{8}, -2$

e) Not Given

33. What is the next number in the following sequence: 1,1,2,3,5,8,13,21 ?

- a) 26 b) 29 c) 34 d) 42 e) Not Given

34. If a fair 6-sided die is rolled, what is the probability of getting a 4 or less?

- a) 5/6 b) 2/3 c) 1/3 d) 1/6 e) Not Given