

The University Interscholastic League

Number Sense Test, Series 9343

Contestant's Number _____

Contestant's Score _____

**Read Directions Carefully
Before Beginning Test**

**Do Not Unfold This Sheet
Until Told To Begin**

DIRECTIONS: Do not turn this page until the person conducting this test gives the signal to begin. This is a ten-minute test. There are 80 problems. Solve accurately and quickly as many as you can in the order in which they appear. **ALL PROBLEMS ARE TO BE SOLVED MENTALLY.** Make no calculations with paper and pencil. Write only the answer in the space provided at the end of each problem. Problems marked with a (*) require approximate integral answers; any answer to a starred problem that is within five per cent of the exact answer will be scored correct; all other problems require exact answers.

The person conducting this contest should explain these directions to the contestants.

Stop - Wait for Signal!

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| <p>(1) $9343 + 3430 =$ _____</p> <p>(2) $\frac{3}{14} - \frac{3}{8} =$ _____</p> <p>(3) $25 \times 131 =$ _____</p> <p>(4) $1218 \div 6 =$ _____</p> <p>(5) $24\% =$ _____ (fraction).</p> <p>(6) $1.7 \times .4 =$ _____</p> <p>(7) $212 \div 9 =$ _____ (Mixed Number).</p> <p>(8) $39^2 =$ _____</p> <p>(9) $LX =$ _____ (Arabic Numeral).</p> <p>*(10) $234 + 198 - 59 + 707 =$ _____</p> <p>(11) $12 \times 37 =$ _____</p> <p>(12) $5314 - 1453 =$ _____</p> <p>(13) The GCD of 14, 28 and 49 is _____</p> <p>(14) $14 \times 24 \div 42 - 5 =$ _____</p> <p>(15) Which is smaller, $\frac{7}{8}$ or $\frac{11}{13}$? _____</p> <p>(16) $33 \times 27 =$ _____</p> <p>(17) $6 + 10 + 14 + 18 + 22 =$ _____</p> <p>(18) 16% of 450 is _____</p> <p>(19) $16.5 \div \frac{2}{3} =$ _____</p> <p>*(20) $78795 \div 309 =$ _____</p> | <p>(21) The simple interest on \$1200.00 at 3% for 8 months is \$ _____</p> <p>(22) $13 \times 19 + 19 \times 47 =$ _____</p> <p>(23) $\frac{1}{3}$ of a gallon = _____ cubic inches.</p> <p>(24) $4\frac{1}{4} \times 8\frac{1}{4} =$ _____ (Mixed Number).</p> <p>(25) At 6 cu. yd. per load, how many loads of dirt will fill a hole 12' x 15' x 9'? _____ loads.</p> <p>(26) The LCM of 24 and 30 is _____</p> <p>(27) $(16 \times 5 + 3) \div 4$ has a remainder of _____</p> <p>(28) $9.3 \times 9.7 =$ _____ (decimal).</p> <p>(29) A team won 75% of its 108 games. How many did it win? _____</p> <p>*(30) $332 + 298 \times 69 =$ _____</p> <p>(31) The sum of the roots of $3x^2 - 6x + 9 = 0$ is _____</p> <p>(32) $\sqrt{1369} =$ _____</p> <p>(33) Divide 83 into 2 parts such that the larger number exceeds the smaller number by 25. Find the smaller number. _____</p> <p>(34) $15 \times 98 =$ _____</p> <p>(35) Find x if $\frac{1}{x} + \frac{1}{3} = 5$. $x =$ _____</p> <p>(36) $.242424 \dots =$ _____ (fraction).</p> |
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- (37) $3^2 - 1 =$ _____ (base 2).
- (38) $(.6 \times 1250)^2 =$ _____
- (39) $\frac{1}{10}$ of a mile = _____ feet.
- *(40) $\sqrt{15922} =$ _____
- (41) The area of a rhombus with diagonals 15" and 17" is _____ square inches.
- (42) The geometric mean of 4 and 16 is _____
- (43) $37^2 - 29^2 = 8 \times$ _____
- (44) $15207 \div 111 =$ _____
- (45) The product of the GCD and LCM of 24 and 36 is _____
- (46) $1570 \div 9 =$ _____ (Mixed Number).
- (47) What is the largest divisor of 160 which is less than 25?

- (48) $1740 \times 75 =$ _____
- (49) Find the digit $B > 0$, such that $34B + B35 = 1082$.
 $B =$ _____
- *(50) $23^3 =$ _____
- (51) $97 \times 91 =$ _____
- (52) Find the modulus of $3 + 4i$. _____
- (53) If $\log_3 x = \frac{2}{3}$ then $x =$ _____
- (54) $(3 + i)^2 = a + bi$ and $a =$ _____
- (55) The smallest palindrome greater than 444 is _____
- (56) The hypotenuse of a right triangle is 61 and one leg is 60. The other leg is _____
- (57) The simplified coefficient of the third term of $(2x + 1)^5$ is _____
- (58) $7^4 \div 4$ has a remainder of _____
- (59) The next term of 5, 8, 14, 23, 35, ... is _____
- *(60) $339 \times 48 + 49 \times 340 =$ _____
- (61) Two dice are rolled. What is the probability that the sum is not 7? _____
- (62) The sixteenth pentagonal number is _____
- (63) If $3 < x$ then $x^2 - 2 >$ _____
- (64) If $\tan A = 3$, $A \in \text{QI}$, then $\csc^2 A =$ _____
- (65) $\left(\frac{1}{\sqrt{5}}\right)^2 - \left(\frac{1}{\sqrt{6}}\right)^2 =$ _____
- (66) If $\log_{16} x^2 = \log_9 9$, $x < 0$ then $x =$ _____
- (67) How many positive integers are relatively prime to 26?

- (68) The smallest integer greater than π^2 is _____
- (69) Two dice are rolled. What is the probability that the sum is greater than 5? _____
- *(70) $(.142857 \times 917)^2 =$ _____
- (71) If ${}_4C_2 + {}_4C_3 = x$ then $x =$ _____
- (72) Change .13, base 4 to a base 10 fraction. _____
- (73) The volume of a sphere with a radius of 3" is $k\pi$ cubic inches and $k =$ _____
- (74) If $f(x) = 3x + 1$ and $g(x) = 5x^2$, find $f[g(2)]$. _____
- (75) The remainder when $f(x) = 3x^3 - 4x + 1$ is divided by $x + 2$ is _____
- (76) The vertical asymptote for $y = \log_3(x - 2)$ is $x =$ _____
- (77) $\lim_{x \rightarrow \infty} \frac{3x - 4}{x + 2} =$ _____
- (78) The slope of the tangent line to the curve $y = 3x^3$ at $y = 3$ is _____
- (79) $\int_0^{10} (9 - x) dx =$ _____
- *(80) $43^4 =$ _____