

The University Interscholastic League
Number Sense Test, Series 9342

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) $1994 + 99 - 4 =$ _____</p> <p>(2) $135 \times 7 + 4 =$ _____</p> <p>(3) $3.4 \times 5 =$ _____</p> <p>(4) $\frac{3}{8} =$ _____ %.</p> <p>(5) $\frac{3}{5} + \frac{2}{7} =$ _____</p> <p>(6) $626 \div 9 =$ _____ (Mixed Number).</p> <p>(7) XIX = _____ (Arabic Numeral)</p> <p>(8) The smallest prime divisor of 91 is _____</p> <p>(9) $3\frac{1}{4} \times 3\frac{1}{4} =$ _____ (Mixed Number).</p> <p>*(10) $9 + 42 + 589 + 1359 =$ _____</p> <p>(11) $12 \times 67 =$ _____</p> <p>(12) Which is larger, $\frac{11}{12}$ or $\frac{13}{15}$? _____</p> <p>(13) The GCD of 18, 24, and 54 is _____</p> <p>(14) $4361 - 6143 =$ _____</p> <p>(15) $36 \times 4 \div 9 - 2 =$ _____</p> <p>(16) $7 + 10 + 13 + 16 + 19 =$ _____</p> <p>(17) $26^2 =$ _____</p> <p>(18) 146 less 30% of 150 is _____</p> <p>(19) 19 is what percent less than 25? _____ %.</p> | <p>*(20) $219 + 399 \times 249 =$ _____</p> <p>(21) $2 \div 3\frac{1}{3} =$ _____ (decimal).</p> <p>(22) If one dozen apples cost \$3.24 then four apples cost \$ _____</p> <p>(23) 4 square feet = _____ square inches.</p> <p>(24) $45 \times 41 =$ _____</p> <p>(25) How many integers between 16 and 67 are divisible by 7? _____</p> <p>(26) $(32 + 4 \times 5 + 4) \div 6$ has a remainder of _____</p> <p>(27) The product of the roots of $3x^2 + 7x - 9 = 0$ is _____</p> <p>(28) Evaluate $F(4)$ if $F(x) = x^4 - 6x^2 + 9$. _____</p> <p>(29) The simple interest on \$418.00 at 3% for 6 months is \$ _____</p> <p>*(30) How many seconds are in 3 hours 20 minutes? _____</p> <p>(31) $15 \times 116 =$ _____</p> <p>(32) $.343434 \dots =$ _____ (fraction).</p> <p>(33) $321_4 =$ _____ 10.</p> <p>(34) The number of positive integral divisors of 42 is _____</p> <p>(35) Divide 52 into 2 parts such that the larger number exceeds the smaller number by 18. Find the smaller number. _____</p> <p>(36) $24947 \div 101 =$ _____</p> |
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- (37) What number times 7 and subtracted from 12 gives the same result? _____
- (38) Find x if $\frac{1}{4} = \frac{1}{3} + \frac{1}{x}$. _____
- (39) Three numbers are in the ratio of 3:5:7. If their sum is 90, find the larger number. _____
- *(40) $81344 \div 328 =$ _____
- (41) (3, 2) is the midpoint of the line segment whose endpoints are (5, 8) and (x, y). $y =$ _____
- (42) If $16^2 \times 4^8 \div 64^3 = 4^n$ then $n =$ _____
- (43) The GCD of x and 14 is 7 and their LCM is 70. $x =$ _____
- (44) $96 \times 93 =$ _____
- (45) A square with a perimeter of 16" is inscribed in a circle. The radius of the circle is $a\sqrt{b}$ in. and $a =$ _____
- (46) $27_8 =$ _____ $_4$
- (47) The legs of a right triangle are $\frac{1}{2}$ and 6. Find the length of the hypotenuse. _____ (decimal).
- (48) If $3^{x-1} = 4.04$ then $3^x =$ _____
- (49) An interior angle of a regular hexagon has a measure of _____ degrees.
- *(50) $(.625 \times 1440)^2 =$ _____
- (51) $105 \times 108 =$ _____
- (52) The largest palindrome less than 642 is _____
- (53) Two dice are rolled. Find the probability that the sum is a 2 or a 4. _____
- (54) If $\log_9 x = 1.5$ then $x =$ _____
- (55) Find the smallest number greater than 4 that divides 791. _____
- (56) If $2x - 5 > 17$ then $x >$ _____
- (57) $43 \times 63 =$ _____
- (58) The next term of 2, 6, 18, 54, 162, ... is _____
- *(60) $23^4 =$ _____
- (61) The thirteen pentagonal number is _____
- (62) $1 + 5^{-1} + 5^{-2} + \dots =$ _____
- (63) The area of the ellipse $x^2 + 4y^2 = 36$ is $k\pi$ and $k =$ _____
- (64) $21^3 - 20^3 =$ _____
- (65) Two dice are rolled. What is the probability that the sum is greater than 8? _____
- (66) $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} =$ _____
- (67) How many ways can 6 people be seated 3 at a time in a row of 3 chairs? _____
- (68) $\sin^{-1}(.5) =$ _____ (degrees).
- (69) The parabola $16x = y^2$ has its focus at (k, 0) and $k =$ _____
- *(70) $(110 \times 36)^2 \div (109 \times 72) =$ _____
- (71) If $f(4) = 9$ then $f^{-1}(9) =$ _____
- (72) The odds of losing are 2 to 7. What is the probability of winning? _____
- (73) Find the smallest value of x so that $f(x) = \sqrt{3x+1}$ is real valued. _____
- (74) If $g(x) = x - 2$ then $g[g(6)] =$ _____
- (75) $\det \begin{vmatrix} 5 & 8 \\ 6 & 7 \end{vmatrix} =$ _____
- (76) $.17777 \dots =$ _____ (fraction).
- (77) If $\frac{a}{8}$ has a remainder of 5 and $\frac{b}{8}$ has a remainder of 7 then $\frac{ab}{8}$ has a remainder of _____
- (78) $\lim_{x \rightarrow 0} \frac{\sin x}{x} =$ _____
- (79) $\int_0^2 (1-x) dx =$ _____
- *(80) $35 \times 142857 =$ _____