NUMBER SENSE
Practice Packet S18

Written by

Larry White, Contest Director

We are a small company that listens! If you have any questions or if there is an area that you would like fully explored, let us hear from you. We hope you enjoy this product and stay in contact with us throughout your academic journey.
~ President Hexco Inc., Linda Tarrant

HEXCO ACADEMIC
www.hexco.com
P.O. Box 199 • Hunt, Texas 78024
Phone: 800.391.2891 • Fax: 830.367.3824
Email: hexco@hexco.com

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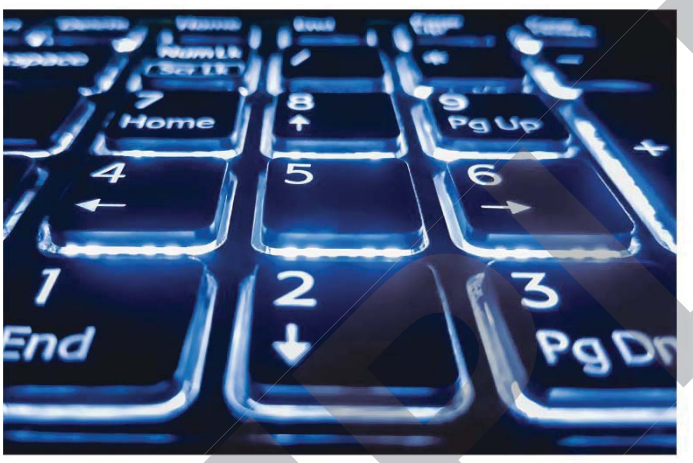
NUMBER SENSE

PRACTICE PACKET – Spring 2018



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General Instructions

Six Sets of Number Sense Tests (S18A-S18F)

Each Test Includes:

- 80 Questions - fill-in-the-blank
- Solutions

For official UIL Constitution and Contest Rules for Number Sense, please review the Section 920 document at: http://www.uiltexas.org/academics/number-sense

Hexco 2017-18 Number Sense Test S18D

Final _____ _____
2nd _____ _____
1st _____ _____
Score Initials

Contestant's Number _____

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 percent 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!

(1) $11 \times 123 =$ _____

(2) $318 + 813 =$ _____

(3) $27^2 =$ _____

(4) $657 - 765 =$ _____

(5) $81 \times 25 =$ _____

(6) $1167 \div 9 =$ _____ (mixed number)

(7) $\frac{2}{5} - \frac{3}{10} - \frac{7}{15} =$ _____

(8) 31.25% = _____ (proper fraction)

(9) $1 + 2 + 3 + 4 + ... + 12 =$ _____

***(10)** $5432 + 432 + 32 + 2 =$ _____

(11) $28 \div 1.5 =$ _____

(12) Which is larger $-\frac{5}{12}$ or -0.43? _____

(13) $123 \times 4 - 5 =$ _____

(14) $13 \times \frac{13}{17} =$ _____ (mixed number)

(15) $49 \times 62 - 34 \times 62 =$ _____

(16) 23% of \$23.00 is \$_____

(17) $235 \times 16 =$ _____

(18) $24 + 18 \div 12 \times 6 =$ _____

(19) The arithmetic mean of 17, 35, 26, and 54 is _____

***(20)** $252627 \div 728 =$ _____

(21) $2\frac{3}{5} - 5\frac{2}{3} =$ _____ (mixed number)

(22) Let set P = {p,a,c,e} and set M = {m,a,k,e,r}. How many unique elements are in $A \cap B$? _____

(23) $6 + 8 + 10 + 13 + 15 + 17 =$ _____

(24) $51 \times 27 =$ _____

(25) $12\frac{1}{6} \times 6\frac{1}{6} =$ _____ (mixed number)

(26) If $k < 0$ and $k^2 = 81$, then $k^3 =$ _____

(27) If 8 woks cost \$12.34 then 12 pens cost \$_____

(28) If $x = 4$ and $y = -11$ then $x^2 - 2xy + y^2 =$ _____

(29) $(45 \times 8 - 7) \div 6$ has a remainder of _____

***(30)** $\sqrt{91101} =$ _____

(31) 1 quart + 1 pint = _____ cups

(32) .2666... = _____ (proper fraction)

(33) $235_4 =$ _____ $_{10}$

(34) Round $3\sqrt{5}$ to the tenths place. _____

(35) If x is to 4 as 12 is to 3 then x = _____

(33) $\frac{1}{6} + \frac{1}{12} + \frac{1}{18} =$ _____

(34) 60 feet/minute = _____ inches/second

(35) If $5 + 3x = 4$, then $5x - 3 =$ _____

(36) 57 base 10 = _____ base 4

(37) If a = 34 and b = 18, then $a^2 - 2ab + b^2 =$ _____

(38) $6^{(-1)} + 6^{(-2)} =$ _____

(39) $6! \div 6 + 5 \times 4! =$ _____

*(40) $\sqrt{6789876} =$ _____

(41) $62 \times 34 =$ _____

(42) If $A \neq 0$ and $A^4 \div A^k \times A^5 = A^2$ then k = _____

(43) If $8^{(x+y)} = 4{,}096$ then $4^{(x+y)} =$ _____

(44) $123_6 - 45_6 =$ _____ 6

(45) $66 \div 1.375 =$ _____

(46) The midpoint between the points (— 1, 2) and (4, — 2) is (h, k). Find $h + k$. _____

(47) The 4-digit number 397k is divisible by 9. k = ____

(48) The vertex of $y = x^2 + 5x - 14$ is (h, k). k = _____

(49) $2 + 5 + 8 + 11 + \ldots + 29 + 32 =$ _____

*(50) (0.666...)(246531) = _____

(51) $108 \times 106 =$ _____

(52) Let $(5 + 2i)(3 + 4i) = a + bi$. Find a. _____

(53) $217 \times 341 =$ _____

(54) 12% of $833\frac{1}{3}$ is _____

(55) If 5, 11, and x are the integral sides of a triangle, then the least value of x is _____

(56) The 5th pentagonal number is _____

(57) ${}_{11}C_9 =$ _____

(58) The coefficient of the 2nd term of the expansion of $(x + 2y)^5$ is _____

(59) If $x^2 + y^2 = 130$, $x > y$ and both x and y are positive integers, then $x + y =$ _____

*(60) $8 \times 16 \times 24 \times 32 =$ _____

(61) If $y = 1 + 2\sin(3\pi x - 4)$. The frequency is _____

(62) $(11 + 10)^2 - (11^2 - 10^2) =$ _____

(63) 0.353535... base 7 = _____ base 10 (fraction)

(64) If 4P = 2Q and 8Q = 3R then P = _____R

(65) Find the sum of all positive integers x such that $2x + 5 \leq 11$. _____

(66) $\cos(\frac{5\pi}{3}) =$ _____

(67) $\sec(300°) =$ _____

(68) $f(x) = 3x^2 - 1$. $g(x) = 3 - 2x$. $f(g(3))$. _____

(69) The odds of losing are 5 to 3. The probability of winning is _____%

*(70) $[(e)(\pi)]^5 =$ _____

(71) Let $f(x) = 3x^2 - 4x - 1$. Find $f''(-2)$. _____

(72) A two-digit *perfect* number is _____

(73) The Greatest Integer Function is written as $f(x) = [x]$. Find $\left[\sqrt{2} + \sqrt{3} + \sqrt{5}\right]$. _____

(74) $\frac{7}{27} \times 111 =$ _____ (mixed number)

(75) If $f(x) = 5 + \frac{4x-3}{2}$, then $f^{-1}(-1) =$ _____

(76) $\int_2^3 (2x - 3)\,dx =$ _____

(77) If $x < 0$ and $|3x - 1| = 5$ then x = _____

(78) $1111 \times 123 =$ _____

(79) $12 \div 56 = 48 \div$ _____

*(80) $\sqrt{345} \times \sqrt{2018} =$ _____