

**University Interscholastic League
2018 – 2019 Elementary Number Sense Test A**

Contestant's Number _____

Final		
2 nd		
1 st		
	Score	Initials

**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!

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|--|---|
| <p>(1) $38 - 15 =$ _____</p> <p>(2) $27 + 39 =$ _____</p> <p>(3) $706 - 607 =$ _____</p> <p>(4) $14 \times 3 =$ _____</p> <p>(5) $9 \times 11 =$ _____</p> <p>(6) $8 + 16 - 4 =$ _____</p> <p>(7) $96 \div 12 =$ _____</p> <p>(8) Which digit is in the hundredth's place in 201837.6495 ? _____</p> <p>(9) $4 \times 3 \times 5 =$ _____</p> <p>*(10) $2190 + 2019 + 21 =$ _____</p> <p>(11) $819 \div 9 =$ _____</p> <p>(12) 76231.05882 rounded to the ten-thousands place is _____</p> <p>(13) $12 \times 15 + 10 \times 12 =$ _____</p> <p>(14) MMD = _____ (Arabic numeral)</p> <p>(15) $32 \times 38 =$ _____</p> <p>(16) $15 \times 13 =$ _____</p> <p>(17) $17 \times 12 =$ _____</p> <p>(18) $4 \times 10^3 + 1 \times 10^1 + 6 \times 10^{-2} =$ _____ (decimal)</p> <p>(19) $3087 \div 3$ has a remainder of _____</p> | <p>*(20) $143 \times 2810 =$ _____</p> <p>(21) $12 + 6 \div 3 =$ _____</p> <p>(22) $\frac{8}{13} + \frac{3}{13} =$ _____ (common fraction)</p> <p>(23) $3\frac{1}{2}$ hours = _____ minutes</p> <p>(24) $11 \times 55 =$ _____</p> <p>(25) $\frac{3}{5} =$ _____ decimal</p> <p>(26) Which is larger: 0.3257 or $\frac{1}{3}$? _____</p> <p>(27) $16 \times 75 =$ _____</p> <p>(28) 45 percent = _____ (common fraction)</p> <p>(29) The largest prime number less than 90 is _____</p> <p>*(30) $444 \times 271 + 16 =$ _____</p> <p>(31) 87.5 % = _____ (common fraction)</p> <p>(32) The largest prime number that can divide evenly into 104 is _____</p> <p>(33) $539 \times 11 =$ _____</p> <p>(34) $\frac{13}{10} \div \frac{26}{1000} =$ _____</p> <p>(35) Eight is to six as n is to twenty-four. n = _____</p> <p>(36) If 9 ♥ cost 24¢, then 6 ♥ cost _____ ¢</p> <p>(37) The greatest common divisor of 24 and 18 is _____</p> |
|--|---|

- (38) $\frac{17}{24} - \frac{11}{24} =$ _____ (common fraction)
- (39) $(72 \times 33 + 98) \div 5$ has a remainder of _____
- *(40) $62 \frac{1}{2} \times 4810 - 25 =$ _____
- (41) $\frac{4}{9} + \frac{1}{6} =$ _____ (common fraction)
- (42) A number, n , minus 14 equals 7. What is n ?

- (43) If $x = 8$, then $50 - 4x =$ _____
- (44) What is the perimeter of an isosceles triangle with congruent sides 23 and the other side 25? _____
- (45) 9 yards = _____ inches
- (46) $4 \frac{1}{5} \times 4 \frac{4}{5} =$ _____ (mixed number)
- (47) What is the number, k , in the sequence:
3, 6, 9, k , 15, ...? _____
- (48) $18^2 =$ _____
- (49) 45 (Base 6) = _____ Base 10
- *(50) $45^2 \times 110 =$ _____
- (51) $9 \times \frac{11}{13} =$ _____ (mixed number)
- (52) $6 \frac{7}{8} + 4 \frac{5}{6} =$ _____ (mixed number)
- (53) $94 \times 99 =$ _____
- (54) If set $A = \{W, E, S, L, A, C, O\}$ and set $B = \{T, E, X, A, S\}$, then the number of elements in $A \cap B$ is _____
- (55) If three times a number less 24 is the same as 48, then the number is _____
- (56) $24 \div 0.125 =$ _____
- (57) $33 \times 37 =$ _____
- (58) For a right triangle, if the length of a hypotenuse is 15 and one leg is 12, then the other leg is _____
- (59) If the area of a circle is 144π , then the circumference of the circle is $k\pi$, and $k =$ _____
- *(60) $417 \times 2400 =$ _____
- (61) $(-4) + (-2) \times (-5) =$ _____
- (62) $4^3 - 3^4 + 2^2 =$ _____
- (63) The multiplicative inverse of $-\frac{2}{5}$ is _____
- (64) The number of vertices in an octagon is _____
- (65) $24^2 + 8^2 =$ _____
- (66) If a pair of dice are thrown, the probability that the sum of the dice equals 3 is _____
- (67) What is the area of a trapezoid with bases 18 and 14 with altitude 12? _____
- (68) $\sqrt{99856} =$ _____
- (69) 23 (Base 4) = _____ (Base 2)
- *(70) $202^2 =$ _____
- (71) $88 \times 5 \frac{1}{4} =$ _____
- (72) What is the perimeter of an equilateral triangle with a side $16 \frac{2}{3}$? _____
- (73) $73^2 - 63^2 =$ _____
- (74) If $8 + 3x > 17$, then $x >$ _____
- (75) $46^2 =$ _____
- (76) If a single card is randomly pulled from a standard deck of 52 cards, what is the probability the card will be a red ace? _____
- (77) $16 \frac{2}{3} \%$ of 36 is _____
- (78) If the angles of a triangle are 14° and 43° , what is the measure of the third angle? _____ $^\circ$
- (79) $17^2 + 51^2 =$ _____
- *(80) $27 \times 30 \times 33 =$ _____

2018 – 2019 University Interscholastic League Elementary Number Sense Test A – Key

(1) 23	* (20) 381739 – 421921	(38) $\frac{1}{4}$	(59) 24
(2) 66	(21) 14	(39) 4	* (60) 950760 – 1050840
(3) 99	(22) $\frac{11}{13}$	* (40) 285570 – 315630	(61) 6
(4) 42	(23) 210	(41) $\frac{11}{18}$	(62) -13
(5) 99	(24) 605	(42) 21	(63) $-\frac{5}{2}; -2\frac{1}{2}; -2.5$
(6) 20	(25) .6	(43) 18	(64) 8
(7) 8	(26) $\frac{1}{3}$	(44) 71	(65) 640
(8) 4	(27) 1200	(45) 324	(66) $\frac{1}{18}$
(9) 60	(28) $\frac{9}{20}$	(46) $20\frac{4}{25}$	(67) 192
* (10) 4019 – 4441	(29) 89	(47) 12	(68) 316
(11) 91	* (30) 114323 – 126357	(48) 324	(69) 1011
(12) 80000	(31) $\frac{7}{8}$	(49) 29	* (70) 38764 – 42844
(13) 300	(32) 13	* (50) 211613 – 233887	(71) 462
(14) 2500	(33) 5929	(51) $7\frac{8}{13}$	(72) 50
(15) 1216	(34) 50	(52) $11\frac{17}{24}$	(73) 1360
(16) 195	(35) 32	(53) 9306	(74) 3
(17) 204	(36) 16	(54) 3	(75) 2116
(18) 4010.06	(37) 6	(55) 24	(76) $\frac{1}{26}$
(19) 0		(56) 192	(77) 6
		(57) 1221	(78) 123
		(58) 9	(79) 2890
			* (80) 25394 – 28066

Note: *(Number) x – y means an integer between x and y inclusive.
 If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666... or $\overline{.6}$.

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| <p>(1) $218 - 39 =$ _____</p> <p>(2) $29 + 28 =$ _____</p> <p>(3) $321 - 123 =$ _____</p> <p>(4) $8 \times 32 =$ _____</p> <p>(5) $11 \times 45 =$ _____</p> <p>(6) $\frac{1}{8} + \frac{5}{8} =$ _____ (common fraction)</p> <p>(7) $2.07 + 4.03 =$ _____ (decimal)</p> <p>(8) $3.25 \times 4 =$ _____</p> <p>(9) $404 \times 25 =$ _____</p> <p>*(10) $167 \times 359 + 7 =$ _____</p> <p>(11) $21^2 =$ _____</p> <p>(12) $\frac{5}{6} - \frac{5}{8} =$ _____ (common fraction)</p> <p>(13) MDLX = _____ (Arabic numeral)</p> <p>(14) $12 \times 21 =$ _____</p> <p>(15) $\frac{8}{9} \times \frac{9}{10} =$ _____</p> <p>(16) The median of 9, 20, 16, and 12 is _____</p> <p>(17) $17 \times 38 - 38 \times 6 =$ _____</p> <p>(18) Which is smaller, $\frac{5}{8}$ or 0.601? _____</p> <p>(19) $14 + 17 + 20 + 23 + 26 =$ _____</p> <p>*(20) $239 \times 749 - 211 =$ _____</p> | <p>(21) $96 \times 93 =$ _____</p> <p>(22) $24 + 16 \div (-2^3) =$ _____</p> <p>(23) $39 \times 13 =$ _____</p> <p>(24) $4 \times \frac{5}{6} =$ _____ (mixed number)</p> <p>(25) If 16 pencils cost \$1.76 then 12 pencils cost \$ _____</p> <p>(26) 12 hours = _____ minutes</p> <p>(27) $15 \times 44 =$ _____</p> <p>(28) If $3x + 23 = 35$ then $x =$ _____</p> <p>(29) $2\frac{1}{3}$ square yards = _____ square feet</p> <p>*(30) $1111 \times 819 =$ _____</p> <p>(31) $3^4 =$ _____</p> <p>(32) What is the largest prime number less than 70? _____</p> <p>(33) $444 \times 75 =$ _____</p> <p>(34) The least common multiple of 24 and 18 is _____</p> <p>(35) If 8 is to 15 as 16 is to n, $n =$ _____</p> <p>(36) If $f(x) = 12 - 5x$, then $f(-3) =$ _____</p> <p>(37) What is the sum of positive integers that divide evenly into 12? _____</p> <p>(38) If the area of a circle 144π, then the circumference of this circle is $k\pi$. What is k? _____</p> <p>(39) If $\frac{1}{2} - \frac{1}{x} = \frac{3}{10}$, $x =$ _____</p> |
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*(40) $2045 - 555 \times 999 =$ _____

(41) If set $A = \{A, U, S, T, I, N\}$ and $B = \{T, E, X, A, S\}$, then $A \cap B$ has how many elements? _____

(42) $14 \times 429 =$ _____

(43) $73201 \div 11$ has a remainder of _____

(44) What is the area of a parallelogram with base, $2\frac{1}{4}$ and height $6\frac{1}{4}$? _____

(45) 12 gallons = _____ quarts

(46) 213 base 4 = _____ base 10

(47) What is the surface area of a rectangular box with edges 12, 5 and 8? _____

(48) If $6 - 3x \leq 21$, then $x \geq$ _____

(49) If a number plus 3 times itself is 48, then what is the number? _____

*(50) $250\% \times 1088 =$ _____

(51) 232 base 6 + 145 base 6 = _____ base 6

(52) Three and one-eighth = _____ %

(53) $4\frac{3}{4} - 1\frac{5}{6} =$ _____ (mixed number)

(54) The measure of the interior angle of a regular pentagon is _____ degrees

(55) $111 \times 829 =$ _____

(56) What is the length of the hypotenuse for a right triangle with legs that measure 8 and 15? _____

(57) $\frac{1}{6} + \frac{1}{3} - \frac{1}{9} =$ _____

(58) For the sequence: 2, 3, 5, 8, 12, . . . , k , 30, . . . $k =$ _____

(59) $\frac{2 + 4 + 6 + \dots + 12}{6} =$ _____

*(60) $124\frac{1}{4} \times 125\frac{3}{4} =$ _____

(61) What is the probability of drawing a red king from a standard deck of playing cards? _____

(62) $5! + 4! \times 3! =$ _____

(63) $(319^2 \times 322) \div 4$ has a remainder of _____

(64) $\sqrt{92416} =$ _____

(65) The volume of a right cylinder with diameter 12 and length 11 is $k\pi$, and $k =$ _____

(66) The coordinates for the midpoint between (4, 2) and (6, -8) are (a, b) . What is b ? _____

(67) If 18 % of $4\frac{1}{4}$ is $4\frac{1}{2}$ % of n , then $n =$ _____

(68) $\sqrt{361} - \sqrt{484} =$ _____

(69) $1 + 3 + 5 + \dots + 41 =$ _____

*(70) $28 \times 30 \times 32 =$ _____

(71) $2^5 + 3^4 + 4^3 =$ _____

(72) If the odds of an event successfully happening are 8 to 6, then the probability of that event happening is _____

(73) $0.1666\dots + 0.08333\dots =$ _____ (common fraction)

(74) $1.01 \times 1.5 =$ _____ (decimal)

(75) 25% of 44 less 44 is _____

(76) If 144 is the volume of a rectangular box with edges 8, 6 and n , what is n ? _____

(77) $45^2 + 15^2 =$ _____

(78) If 36π is the volume of a sphere, then its radius is _____

(79) $17^2 - 28^2 =$ _____

*(80) $833 \times 2404 =$ _____

2018 – 2019 University Interscholastic League Junior High Number Sense Test A – Key

(1) 179	(21) 8928	*(40) -580020 – -524780	*(60) 14844 – 16405
(2) 57	(22) 22	(41) 3	(61) $\frac{1}{26}$
(3) 198	(23) 507	(42) 6006	(62) 264
(4) 256	(24) $3\frac{1}{3}$	(43) 7	(63) 2
(5) 495	(25) 1.32	(44) $14\frac{1}{16}; \frac{225}{16};$ or 14.0625	(64) 304
(6) $\frac{3}{4}$	(26) 720	(45) 48	(65) 396
(7) 6.1	(27) 660	(46) 39	(66) -3
(8) 13	(28) 4	(47) 392	(67) 17
(9) 10100	(29) 21	(48) -5	(68) -3
*(10) 56962 – 62958	*(30) 864414 – 955404	(49) 12	(69) 441
(11) 441	(31) 81	*(50) 2584 – 2856	*(70) 25536 – 28224
(12) $\frac{5}{24}$	(32) 67	(51) 421	(71) 177
(13) 1560	(33) 33300	(52) $312.5; 312\frac{1}{2};$ or $\frac{625}{2}$	(72) $\frac{4}{7}$
(14) 252	(34) 72	(53) $2\frac{11}{12}$	(73) $\frac{1}{4}$
(15) $\frac{4}{5}; .8$	(35) 30	(54) 108	(74) 1.515
(16) 14	(36) 27	(55) 92019	(75) -33
(17) 418	(37) 28	(56) 17	(76) 3
(18) .601	(38) 24	(57) $\frac{7}{18}$	(77) 2250
(19) 100	(39) 5	(58) 23	(78) 3
*(20) 169860 – 187740		(59) 7	(79) -495
			*(80) 1902406 – 2102658

Note: *(Number) x – y means an integer between x and y inclusive.
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| <p>(1) $67 - 25 =$ _____</p> <p>(2) $41 + 59 =$ _____</p> <p>(3) $413 - 314 =$ _____</p> <p>(4) $17 \times 3 =$ _____</p> <p>(5) $8 \times 12 =$ _____</p> <p>(6) $4 + 18 - 7 =$ _____</p> <p>(7) $121 \div 11 =$ _____</p> <p>(8) Which digit is in the ten-thousands place in 201837.6495 ? _____</p> <p>(9) $2 \times 9 \times 5 =$ _____</p> <p>*(10) $2018 + 2109 + 73 =$ _____</p> <p>(11) $804 \div 6 =$ _____</p> <p>(12) 76231.05882 rounded to the thousandths place is _____ (decimal)</p> <p>(13) $11 \times 13 + 12 \times 11 =$ _____</p> <p>(14) MMXVIII = _____ (Arabic numeral)</p> <p>(15) $47 \times 67 =$ _____</p> <p>(16) $12 \times 13 =$ _____</p> <p>(17) $15 \times 18 =$ _____</p> <p>(18) $4 \times 10^2 + 6 \times 10^0 + 7 \times 10^{-1} =$ _____ (decimal)</p> <p>(19) $5793 \div 9$ has a remainder of _____</p> | <p>*(20) $7102 \times 143 =$ _____</p> <p>(21) $18 + 12 \div 3 =$ _____</p> <p>(22) $\frac{7}{15} + \frac{2}{15} =$ _____ (common fraction)</p> <p>(23) $2\frac{1}{2}$ days = _____ hours</p> <p>(24) $25 \times 44 =$ _____</p> <p>(25) $\frac{7}{5} =$ _____ (decimal)</p> <p>(26) Which is larger: $\frac{3}{5}$ or $\frac{5}{8}$? _____</p> <p>(27) $11 \times 87 =$ _____</p> <p>(28) 84 percent = _____ (common fraction)</p> <p>(29) The smallest prime number greater than 71 is _____</p> <p>*(30) $333 \times 181 + 7 =$ _____</p> <p>(31) 2.5 % = _____ (common fraction)</p> <p>(32) The smallest prime number that can divide evenly into 405 is _____</p> <p>(33) $11 \times 645 =$ _____</p> <p>(34) $\frac{9}{10} \div \frac{3}{1000} =$ _____</p> <p>(35) Nine is to six as n is to four. n = _____</p> <p>(36) If 3 ♥ cost 25¢, then 12 ♥ cost _____ ¢</p> <p>(37) The least common multiple of 21 and 35 is _____</p> |
|---|--|

- (38) $\frac{11}{24} + \frac{7}{24} =$ _____ (common fraction)
- (39) $(15 \times 34 - 98) \div 4$ has a remainder of _____
- *(40) $45 \frac{5}{11} \times 4399 =$ _____
- (41) $\frac{3}{8} + \frac{1}{6} =$ _____ (common fraction)
- (42) A number, n , added to 14 equals 20. What is n ?

- (43) If $x = 6$, then $20 + 3x =$ _____
- (44) What is the perimeter of an isosceles triangle with congruent sides 15 and the other side 20? _____
- (45) 72 inches = _____ yards
- (46) $3 \frac{1}{6} \times 9 \frac{1}{6} =$ _____ (mixed number)
- (47) What is the number, k , in the sequence:
0, 3, 8, k , 24, ...? _____
- (48) $14^2 =$ _____
- (49) 212 (Base 3) = _____ Base 10
- *(50) $16^2 \times 2490 =$ _____
- (51) $8 \times \frac{10}{12} =$ _____ (mixed number)
- (52) $15 \frac{5}{6} - 4 \frac{7}{12} =$ _____ (mixed number)
- (53) $103 \times 104 =$ _____
- (54) If set $A = \{E, L, P, A, S, O\}$ and set $B = \{T, E, X, A, S\}$, then the number of elements in $A \cup B$ is _____
- (55) If four times a number less 24 is the same as 36, then the number is _____
- (56) The perimeter of a square with side 4.75 is _____
- (57) $63 \times 67 =$ _____
- (58) For a right triangle, if the length of a hypotenuse is 26 and one leg is 24, then the other leg is _____
- (59) If the circumference of a circle is 24π , then the area of the circle is $k\pi$, and $k =$ _____
- *(60) $417 \times 1199 =$ _____
- (61) $(-6) - (-4) \times (-3) =$ _____
- (62) $5^3 + 4^3 \div 2^3 =$ _____
- (63) The additive inverse of $-\frac{23}{5}$ is _____
- (64) The number of edges in a cube is _____
- (65) If $9^2 + x^2 = 90$, then $x =$ _____
- (66) If a pair of dice are thrown, the probability that the sum of the dice equals 9 is _____
- (67) What is the area of a parallelogram with base 8 and with altitude $12 \frac{1}{2}$? _____
- (68) $\sqrt{78400} =$ _____
- (69) 76 (Base 8) = _____ (Base 2)
- *(70) $749^2 =$ _____
- (71) $36 \times 3 \frac{1}{4} =$ _____
- (72) What is the area of a rhombus with diagonals $4 \frac{1}{2}$ and 4? _____
- (73) $24^2 - 20^2 = 4k$ and $k =$ _____
- (74) If $8 - 5x > 33$, then $x <$ _____
- (75) $61^2 =$ _____
- (76) If a black bag contains 4 red, 6 blue and 10 green marbles, what is the probability of drawing a single blue marble? _____
- (77) $22 \frac{2}{9} \%$ of 27 is _____
- (78) What is the distance from negative 18 to positive 41 on the number line? _____
- (79) $(2.5)^2 + (7.5)^2 =$ _____
- *(80) $99 \times 100 \times 101 =$ _____

2018 – 2019 University Interscholastic League Elementary Number Sense Test B – Key

(1) 42	*(20) 964807 – 1066365	(38) $\frac{3}{4}$	(59) 144
(2) 100	(21) 22	(39) 0	*(60) 474984 – 524982
(3) 99	(22) $\frac{3}{5}$	*(40) 189957 – 209952	(61) -18
(4) 51	(23) 60	(41) $\frac{13}{24}$	(62) 133
(5) 96	(24) 1100	(42) 6	(63) $\frac{23}{5}$; $4\frac{3}{5}$; 4.6
(6) 15	(25) 1.4	(43) 38	(64) 12
(7) 11	(26) $\frac{5}{8}$	(44) 50	(65) 3
(8) 0	(27) 957	(45) 2	(66) $\frac{1}{9}$
*(10) 3990 – 4410	(28) $\frac{21}{25}$	(46) $29\frac{1}{36}$	(67) 100
(11) 134	(29) 73	(47) 15	(68) 280
(12) 76231.059	*(30) 57266 – 63294	(48) 196	(69) 111110
(13) 275	(31) $\frac{1}{40}$	(49) 23	*(70) 532951 – 589051
(14) 2018	(32) 3	*(50) 605568 – 669312	(71) 117
(15) 3149	(33) 7095	(51) $6\frac{2}{3}$	(72) 9
(16) 156	(34) 300	(52) $11\frac{1}{4}$	(73) 44
(17) 270	(35) 6	(53) 10712	(74) -5
(18) 406.7	(36) 100	(54) 8	(75) 3721
(19) 6	(37) 105	(55) 15	(76) $\frac{3}{10}$; .3
		(56) 19	(77) 6
		(57) 4221	(78) 59
		(58) 10	(79) 62.5 ; $62\frac{1}{2}$; $\frac{125}{2}$
			*(80) 949905 – 1049895

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- | | |
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| <p>(1) $82 - 28 =$ _____</p> <p>(2) $219 + 218 =$ _____</p> <p>(3) $6 \times 16 =$ _____</p> <p>(4) $918 \div 9 =$ _____</p> <p>(5) $\frac{1}{8} + \frac{3}{8} =$ _____ (common fraction)</p> <p>(6) $3.5 \times 6 =$ _____</p> <p>(7) $4.13 - 1.23 =$ _____ (decimal)</p> <p>(8) $0.125 \div 5 =$ _____ (decimal)</p> <p>(9) $50 \times 303 =$ _____</p> <p>*(10) $667 \times 299 + 7 =$ _____</p> <p>(11) $14^2 =$ _____</p> <p>(12) $\frac{5}{6} \div \frac{2}{3} =$ _____</p> <p>(13) $23 \times 27 =$ _____</p> <p>(14) MMXVIII = _____ (Arabic numeral)</p> <p>(15) $\frac{5}{4} \times \frac{8}{15} =$ _____</p> <p>(16) The mean of 14, 20, 15, and 11 is _____</p> <p>(17) $11 + 17 + 23 + 29 =$ _____</p> <p>(18) Which is larger, $\frac{11}{16}$ or $\frac{9}{13}$? _____</p> <p>(19) $14 \div 5 + 16 \div 5 =$ _____</p> <p>*(20) $143 \times 491 - 13 =$ _____</p> | <p>(21) 370 millimeters = _____ meters</p> <p>(22) 4 square yards = _____ square feet</p> <p>(23) $201 \div 6 =$ _____</p> <p>(24) $6 \times \frac{7}{8} =$ _____ (mixed number)</p> <p>(25) $97 \times 96 =$ _____</p> <p>(26) 9 days = _____ hours</p> <p>(27) $66 \times 1.5 =$ _____</p> <p>(28) If 14 ♥'s cost \$1.96, then 10 ♥'s cost \$ _____</p> <p>(29) $8\frac{1}{4} \div \frac{1}{4} =$ _____</p> <p>*(30) $501 \times 481 - 1 =$ _____</p> <p>(31) $\sqrt[3]{125} =$ _____</p> <p>(32) If $15 - 3x = 18$, $x =$ _____</p> <p>(33) The greatest common divisor of 24 and 36 is _____</p> <p>(34) $2100 \div 75 =$ _____</p> <p>(35) If $f(x) = 14 + 6x$, then $f(-3) =$ _____</p> <p>(36) If 14 is to 10 as 7 is to n, then $n =$ _____</p> <p>(37) 28 has how many whole number divisors? _____</p> <p>(38) If the circumference of a circle is 36π, then the area of this circle is $k\pi$. What is k? _____</p> <p>(39) If $\frac{4}{5} + \frac{1}{x} = \frac{3}{10}$, $x =$ _____</p> |
|--|--|

*(40) $201 \times 49 + 51 \times 199 =$ _____

(41) If set $A = \{L, U, B, B, O, C, K\}$ and $B = \{C, O, U, N, T, Y\}$, then $A \cup B$ has how many elements? _____

(42) $83471 \div 9$ has a remainder of _____

(43) $640 \times 125 =$ _____

(44) What is the perimeter of a rhombus with side $2\frac{1}{4}$?

(45) 41 base 10 = _____ base 6

(46) If $8 + 3x \geq 35$, then $x \geq$ _____

(47) What is the sum-total number of degrees in the interior of a regular pentagon? _____°

(48) The surface area of a cube with edge 8 is _____

(49) If a number minus 4 times itself is 24, then what is the number? _____

*(50) $444\frac{4}{9}\% \times 2690 =$ _____

(51) 232 base 6 - 45 base 6 = _____ base 6

(52) $529 \times 111 =$ _____

(53) $7\frac{5}{8} + 6\frac{5}{6} =$ _____ (mixed number)

(54) What is k in the sequence: 2, 5, 10, k , 26, ...?

(55) $\sqrt{96100} =$ _____

(56) What is the length of a side for a right triangle with hypotenuse 50, and other leg 48? _____

(57) $\frac{7}{8} + \frac{6}{8} + \frac{5}{8} + \dots + \frac{1}{8} =$ _____

(58) The number of unique edges for a square pyramid is

(59) $\frac{2+4+6+\dots+12}{1+2+3+\dots+12} =$ _____

*(60) $78\frac{1}{3} \times 79\frac{2}{3} =$ _____

(61) What are the odds of drawing a red queen from a standard deck of playing cards? _____

(62) $5! \div 4! \times 3! =$ _____

(63) $(67^2 \times 518) \div 5$ has a remainder of _____

(64) $0.2666\dots =$ _____ (common fraction)

(65) A hamburger patty with thickness 2 cm and diameter 10 cm has a volume of is $k\pi$, and k _____ cm^3

(66) The coordinates for the midpoint between (6, -2) and (a, b) are (-4, -10). What is a ? _____

(67) If $8\frac{1}{2}\%$ of 32 is 4% of n , then $n =$ _____

(68) $\sqrt{289} + \sqrt{625} =$ _____

(69) $39^2 + 13^2 =$ _____

*(70) $41^4 =$ _____

(71) $2^5 \div 4^3 + 2^{-1} =$ _____

(72) If the probability of an event happening is $\frac{5}{6}$, what are the odds that the event will happen? _____

(73) $0.333\dots + 0.0833\dots =$ _____ (common fraction)

(74) $101 \times 125 =$ _____

(75) 24 more than 75% of 24 is _____

(76) The sum of positive integral factors of 12 is _____

(77) $8 \times 13 \times 25 =$ _____

(78) Five different books are on a shelf, how many different ways can the books be arranged? _____

(79) $\left(17\frac{1}{2}\right)^2 - \left(12\frac{1}{2}\right)^2 =$ _____

*(80) $699 \times 1430 =$ _____

2018 – 2019 University Interscholastic League Junior High Number Sense Test B – Key

(1) 54	(21) .37	*(40) 18999 – 20997	*(60) 5929 – 6552
(2) 437	(22) 36	(41) 9	(61) $\frac{1}{25} .04$
(3) 96	(23) $33\frac{1}{2}; 33.5; \frac{67}{2}$	(42) 5	(62) 30
(4) 102	(24) $5\frac{1}{4}$	(43) 80000	(63) 2
(5) $\frac{1}{2}$	(25) 9312	(44) 9	(64) $\frac{4}{15}$
(6) 21	(26) 216	(45) 105	(65) 50
(7) 2.9	(27) 99	(46) 9	(66) -14
(8) .025	(28) 1.40	(47) 540	(67) 68
(9) 15150	(29) 33	(48) 384	(68) 42
*(10) 189468 – 209412	*(30) 228931 – 253029	(49) -8	(69) 1690
(11) 196	(31) 5	*(50) 11358 – 12553	*(70) 2684473 – 2967049
(12) $\frac{5}{4}; 1\frac{1}{4}; 1.25$	(32) -1	(51) 143	(71) 1
(13) 621	(33) 12	(52) 58719	(72) $\frac{5}{11}$
(14) 2018	(34) 28	(53) $14\frac{11}{24}$	(73) $\frac{5}{12}$
(15) $\frac{2}{3}$	(35) -4	(54) 17	(74) 12625
(16) 15	(36) 5	(55) 310	(75) 42
(17) 80	(37) 6	(56) 14	(76) 28
(18) $\frac{9}{13}$	(38) 324	(57) $3\frac{1}{2}; \frac{7}{2}; 3.5$	(77) 2600
(19) 6	(39) -2	(58) 8	(78) 120
*(20) 66690 – 73710		(59) $\frac{7}{13}$	(79) 150
			*(80) 949592 – 1049548

Note: *(Number) x – y means an integer between x and y inclusive.
 If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666... or $\overline{.6}$.

**University Interscholastic League
2018 – 2019 Elementary Number Sense Test C**

Contestant's Number _____

Final		
2 nd		
1 st		
	Score	Initials

**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!

- | | |
|--|---|
| <p>(1) $28 + 41 =$ _____</p> <p>(2) $65 - 22 =$ _____</p> <p>(3) $613 - 316 =$ _____</p> <p>(4) $14 \times 5 =$ _____</p> <p>(5) $9 \times 12 =$ _____</p> <p>(6) $7 + 21 - 8 =$ _____</p> <p>(7) $108 \div 9 =$ _____</p> <p>(8) Which digit is in the tens place in 201837.6495 ? _____</p> <p>(9) $5 \times 6 \times 4 =$ _____</p> <p>*(10) $2901 + 2180 + 9 =$ _____</p> <p>(11) $535 \div 5 =$ _____</p> <p>(12) 76231.05882 rounded to the hundreds place is _____</p> <p>(13) $16 \times 21 + 4 \times 16 =$ _____</p> <p>(14) MMXIX = _____ (Arabic numeral)</p> <p>(15) $37 \times 77 =$ _____</p> <p>(16) $12 \times 18 =$ _____</p> <p>(17) $15 \times 22 =$ _____</p> <p>(18) $8 \times 10^3 + 6 \times 10^1 + 7 \times 10^{-1} =$ _____ (decimal)</p> <p>(19) $5792 \div 9$ has a remainder of _____</p> | <p>*(20) $6982 \times 143 =$ _____</p> <p>(21) $15 - 12 \div 3 =$ _____</p> <p>(22) $\frac{2}{15} + \frac{4}{15} =$ _____ (common fraction)</p> <p>(23) $2\frac{1}{4}$ days = _____ hours</p> <p>(24) $25 \times 42 =$ _____</p> <p>(25) $\frac{8}{5} =$ _____ (decimal)</p> <p>(26) Which is smaller: $\frac{6}{7}$ or $\frac{7}{8}$? _____</p> <p>(27) $11 \times 93 =$ _____</p> <p>(28) 48 percent = _____ (common fraction)</p> <p>(29) The smallest prime number greater than 13 is _____</p> <p>*(30) $333 \times 269 + 13 =$ _____</p> <p>(31) 7.5 % = _____ (common fraction)</p> <p>(32) The smallest prime number that can divide evenly into 105 is _____</p> <p>(33) $11 \times 776 =$ _____</p> <p>(34) $\frac{8}{10} \div \frac{40}{1000} =$ _____</p> <p>(35) Ten is to six as n is to three. n = _____</p> <p>(36) If 4 ♥ cost 25¢, then 12 ♥ cost _____ ¢</p> <p>(37) The least common multiple of 18 and 24 is _____</p> |
|--|---|

2018 – 2019 University Interscholastic League Elementary Number Sense Test C – Key

(1) 69	*(20) 948505 – 1048347	(38) $\frac{3}{4}$	(59) 64
(2) 43	(21) 11	(39) 1	*(60) 427144 – 472106
(3) 297	(22) $\frac{2}{5}$	*(40) 142414 – 157404	(61) -24
(4) 70	(23) 54	(41) $\frac{2}{3}$	(62) 35
(5) 108	(24) 1050	(42) 18	(63) $\frac{12}{5}; 2\frac{2}{5}; 2.4$
(6) 20	(25) 1.6	(43) 39	(64) 8
(7) 12	(26) $\frac{6}{7}$	(44) 52	(65) 4
(8) 3	(27) 1023	(45) 3	(66) $\frac{1}{18}$
(9) 120	(28) $\frac{12}{25}$	(46) $34\frac{1}{36}$	(67) 150
*(10) 4836 – 5344	(29) 17	(47) 64	(68) 270
(11) 107	*(30) 85111 – 94069	(48) 289	(69) 101100
(12) 76200	(31) $\frac{3}{40}$	(49) 38	*(70) 400141 – 442261
(13) 400	(32) 3	*(50) 532238 – 588262	(71) 78
(14) 2019	(33) 8536	(51) $7\frac{1}{5}$	(72) 15
(15) 2849	(34) 20	(52) $5\frac{1}{6}$	(73) 36
(16) 216	(35) 5	(53) 10506	(74) -5
(17) 330	(36) 75	(54) 12	(75) 5041
(18) 8060.7	(37) 72	(55) 10	(76) $\frac{1}{2}; .5$
(19) 5		(56) 15	(77) 8
		(57) 4209	(78) 61
		(58) 24	(79) $14.4; 14\frac{2}{5}; \frac{72}{5}$
			*(80) 118703 – 131197

Note: *(Number) x – y means an integer between x and y inclusive.
 If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666... or $\overline{.6}$.

- (38) $\frac{7}{24} + \frac{11}{24} =$ _____ (common fraction)
- (39) $(18 \times 29 - 85) \div 4$ has a remainder of _____
- *(40) $45 \frac{5}{11} \times 3298 =$ _____
- (41) $\frac{5}{12} + \frac{1}{4} =$ _____ (common fraction)
- (42) A number, n , added to 15 equals 33. What is n ?

- (43) If $x = 7$, then $11 + 4x =$ _____
- (44) What is the perimeter of an isosceles triangle with congruent sides 16 and the other side 20? _____
- (45) 108 inches = _____ yards
- (46) $4 \frac{1}{6} \times 8 \frac{1}{6} =$ _____ (mixed number)
- (47) What is the number, k , in the sequence:
1, 8, 27, k , 125, . . . ? _____
- (48) $17^2 =$ _____
- (49) 123 (Base 5) = _____ Base 10
- *(50) $15^2 \times 2490 =$ _____
- (51) $8 \times \frac{9}{10} =$ _____ (mixed number)
- (52) $9 \frac{5}{6} - 4 \frac{2}{3} =$ _____ (mixed number)
- (53) $102 \times 103 =$ _____
- (54) If set $A = \{L, O, N, G, V, I, E, W\}$ and set $B = \{T, E, X, A, S\}$, then the number of elements in $A \cup B$ is _____
- (55) If five times a number less 16 is the same as 34, then the number is _____
- (56) The perimeter of a square with side 3.75 is _____
- (57) $61 \times 69 =$ _____
- (58) For a right triangle, if the length of a hypotenuse is 26 and one leg is 10, then the other leg is _____
- (59) If the circumference of a circle is 16π , then the area of the circle is $k\pi$, and $k =$ _____
- *(60) $375 \times 1199 =$ _____
- (61) $(-6) - (-6) \times (-3) =$ _____
- (62) $3^3 + 4^3 \div 2^3 =$ _____
- (63) The additive inverse of $-\frac{12}{5}$ is _____
- (64) The number of vertices in a cube is _____
- (65) If $9^2 + x^2 = 97$ and $x > 0$, then $x =$ _____
- (66) If a pair of dice are thrown, the probability that the sum of the dice equals 11 is _____
- (67) What is the area of a parallelogram with base 12 and with altitude $12 \frac{1}{2}$? _____
- (68) $\sqrt{72900} =$ _____
- (69) 54 (Base 8) = _____ (Base 2)
- *(70) $649^2 =$ _____
- (71) $24 \times 3 \frac{1}{4} =$ _____
- (72) What is the area of a rhombus with diagonals $7 \frac{1}{2}$ and 4? _____
- (73) $20^2 - 16^2 = 4k$ and $k =$ _____
- (74) If $12 - 5x > 37$, then $x <$ _____
- (75) $71^2 =$ _____
- (76) If a black bag contains 4 red, 6 blue and 10 green marbles, what is the probability of drawing a single green marble? _____
- (77) $22 \frac{2}{9} \%$ of 36 is _____
- (78) What is the distance from negative 18 to positive 43 on the number line? _____
- (79) $(1.2)^2 + (3.6)^2 =$ _____
- *(80) $49 \times 50 \times 51 =$ _____

**University Interscholastic League
2018 – 2019 Junior High Number Sense Test C**

Contestant's Number _____

Final		
2 nd		
1 st		
	Score	Initials

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- | | |
|---|---|
| <p>(1) $63 - 36 =$ _____</p> <p>(2) $365 + 366 =$ _____</p> <p>(3) $8 \times 16 =$ _____</p> <p>(4) $414 \div 6 =$ _____</p> <p>(5) $\frac{3}{8} + \frac{3}{8} =$ _____ (common fraction)</p> <p>(6) $4.4 \times 5 =$ _____</p> <p>(7) $7.21 - 3.41 =$ _____ (decimal)</p> <p>(8) $0.605 \div 5 =$ _____ (decimal)</p> <p>(9) $50 \times 505 =$ _____</p> <p>*(10) $667 \times 419 + 7 =$ _____</p> <p>(11) $19^2 =$ _____</p> <p>(12) $\frac{9}{10} \div \frac{3}{4} =$ _____</p> <p>(13) $34 \times 36 =$ _____</p> <p>(14) MCMLI = _____ (Arabic numeral)</p> <p>(15) $\frac{9}{4} \times \frac{8}{15} =$ _____</p> <p>(16) The mean of 14, 21, 11, and 10 is _____</p> <p>(17) $13 + 17 + 21 + 25 =$ _____</p> <p>(18) Which is larger, $\frac{11}{14}$ or $\frac{10}{13}$? _____</p> <p>(19) $24 \div 5 + 16 \div 5 =$ _____</p> <p>*(20) $143 \times 351 - 13 =$ _____</p> | <p>(21) 370 millimeters = _____ decimeters</p> <p>(22) 2 square yards = _____ square feet</p> <p>(23) $201 \div 3 =$ _____</p> <p>(24) $5 \times \frac{7}{9} =$ _____ (mixed number)</p> <p>(25) $92 \times 93 =$ _____</p> <p>(26) 11 days = _____ hours</p> <p>(27) $36 \times 1.5 =$ _____</p> <p>(28) If 15 ♥'s cost \$2.25, then 10 ♥'s cost \$ _____</p> <p>(29) $9\frac{3}{4} \div \frac{3}{4} =$ _____</p> <p>*(30) $501 \times 641 - 1 =$ _____</p> <p>(31) $\sqrt[3]{216} =$ _____</p> <p>(32) If $15 - 3x = 48$, $x =$ _____</p> <p>(33) The greatest common divisor of 24 and 32 is _____</p> <p>(34) $1800 \div 75 =$ _____</p> <p>(35) If $f(x) = 17 + 5x$, then $f(-3) =$ _____</p> <p>(36) If 36 is to 8 as 9 is to n, then $n =$ _____</p> <p>(37) 35 has how many whole number divisors? _____</p> <p>(38) If the circumference of a circle is 16π, then the area of this circle is $k\pi$. What is k? _____</p> <p>(39) If $\frac{5}{8} + \frac{1}{x} = \frac{1}{2}$, $x =$ _____</p> |
|---|---|

- *(40) $200 \times 24 + 25 \times 200 =$ _____
- (41) If set $A = \{S, A, N, F, O, R, D, Y, C, E\}$ and $B = \{T, E, X, A, S\}$, then $A \cup B$ has how many elements? _____
- (42) $307524 \div 9$ has a remainder of _____
- (43) $488 \times 125 =$ _____
- (44) What is the perimeter of a rhombus with side $7\frac{1}{4}$?

- (45) 57 base 10 = _____ base 5
- (46) If $11 + 4x \geq 47$, then $x \geq$ _____
- (47) What is the sum-total number of degrees in the interior of a regular hexagon? _____°
- (48) The surface area of a cube with edge 5 is _____
- (49) If a number minus 5 times itself is 24, then what is the number? _____
- *(50) $444\frac{4}{9}\% \times 1811 =$ _____
- (51) 232 base 5 – 44 base 5 = _____ base 5
- (52) $783 \times 111 =$ _____
- (53) $9\frac{7}{8} + 6\frac{5}{6} =$ _____ (mixed number)
- (54) What is k in the sequence: 0, 3, 8, k , 24, . . . ?

- (55) $\sqrt{84100} =$ _____
- (56) What is the length of a side for a right triangle with hypotenuse 50, and other leg 14? _____
- (57) $\frac{5}{6} + \frac{4}{6} + \frac{3}{6} + \dots + \frac{1}{6} =$ _____
- (58) The number of unique edges for a rectangular box is _____
- (59) $\frac{1+3+5+\dots+9}{1+2+3+\dots+9} =$ _____
- *(60) $74\frac{1}{3} \times 75\frac{2}{3} =$ _____
- (61) What are the odds of drawing a red jack from a standard deck of playing cards? _____
- (62) $8! \div 6! \times 3! =$ _____
- (63) $(48^2 \times 504) \div 5$ has a remainder of _____
- (64) $0.4666\dots =$ _____ (common fraction)
- (65) A hamburger patty with thickness 4 cm and diameter 10 cm has a volume of is $k\pi$, and k _____ cm^3
- (66) The coordinates for the midpoint between (8, -6) and (a , b) are (-4, -10). What is a ? _____
- (67) If $8\frac{1}{2}\%$ of 16 is 4% of n , then $n =$ _____
- (68) $\sqrt{196} + \sqrt{324} =$ _____
- (69) $42^2 + 14^2 =$ _____
- *(70) $26^4 =$ _____
- (71) $2^5 \div 4^3 - 2^{-1} =$ _____
- (72) If the probability of an event happening is $\frac{3}{7}$, what are the odds that the event will happen? _____
- (73) $0.08333\dots + 0.1666\dots =$ _____ (common fraction)
- (74) $23865 \div 111 =$ _____
- (75) 12 more than 75% of 12 is _____
- (76) The sum of positive integral factors of 20 is _____
- (77) $25 \times 14 \times 8 =$ _____
- (78) Six different books are on a shelf, how many different ways can the books be arranged? _____
- (79) $\left(20\frac{1}{2}\right)^2 - \left(15\frac{1}{2}\right)^2 =$ _____
- *(80) $349 \times 1430 =$ _____

2018 – 2019 University Interscholastic League Junior High Number Sense Test C – Key

(1) 27	(21) $3.7; \frac{37}{10}; 3\frac{7}{10}$	*(40) 9310 – 10290	*(60) 5344 – 5905
(2) 731	(22) 18	(41) 12	(61) $\frac{1}{25}; .04$
(3) 128	(23) 67	(42) 3	(62) 336
(4) 69	(24) $3\frac{8}{9}$	(43) 61000	(63) 1
(5) $\frac{3}{4}$	(25) 8556	(44) 29	(64) $\frac{7}{15}$
(6) 22	(26) 264	(45) 212	(65) 100
(7) 3.8	(27) 54	(46) 9	(66) -16
(8) .121	(28) 1.50	(47) 720	(67) 34
(9) 25250	(29) 13	(48) 150	(68) 32
*(10) 265506 – 293454	*(30) 305083 – 337197	(49) -6	(69) 1960
(11) 361	(31) 6	*(50) 7647 – 8451	*(70) 434128 – 479824
(12) $\frac{6}{5}; 1\frac{1}{5}; 1.2$	(32) -11	(51) 133	(71) 0
(13) 1224	(33) 8	(52) 86913	(72) $\frac{3}{4}; .75$
(14) 1951	(34) 24	(53) $16\frac{17}{24}$	(73) $\frac{1}{4}$
(15) $\frac{6}{5}; 1\frac{1}{5}; 1.2$	(35) 2	(54) 15	(74) 215
(16) 14	(36) 2	(55) 290	(75) 21
(17) 76	(37) 4	(56) 48	(76) 42
(18) $\frac{11}{14}$	(38) 64	(57) $2\frac{1}{2}; \frac{5}{2}; 2.5$	(77) 2800
(19) 8	(39) -8	(58) 12	(78) 720
*(20) 47671 – 52689		(59) $\frac{5}{9}$	(79) 180
			*(80) 474117 – 524023

Note: *(Number) x – y means an integer between x and y inclusive.
 If an answer is of the type like $\frac{2}{3}$ it cannot be written as .666... or $\overline{.6}$.