The University Interscholastic League
Number Sense Test • HS SAC • 2009

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.

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STOP -- WAIT FOR SIGNAL!

(1) $2010 + 2009 =$ _____

(2) $2009 \times 11 =$ _____

(3) $9002 - 2010 =$ _____

(4) $2010 \div 25 =$ _____ (decimal)

(5) $\frac{3}{5} \div \frac{8}{15} =$ _____

(6) $4 \times 2\frac{2}{3} =$ _____ (mixed number)

(7) $16\ \% =$ _____ (proper fraction)

(8) $3 + (4 \times 5 - 6) \div 7 =$ _____

(9) $\frac{3}{8} =$ _____ (decimal)

*(10) $2009 + 2010 + 2910 =$ _____

(11) $12^2 =$ _____

(12) $12^3 =$ _____

(13) 24 is what % of 60? _____ %

(14) $32 \times 23 =$ _____

(15) $1 + 3 + 5 + \ldots + 23 =$ _____

(16) Which is larger, $\frac{11}{13}$ or $\frac{13}{16}$? _____

(17) $2010 \div 9$ has a remainder of _____

(18) MCDLXIV = _____ (Arabic Number)

(19) $\frac{1}{4}$ ton is equivalent to _____ ounces

*(20) $235 \times 146 =$ _____

(21) $0.323232\ldots =$ _____ (proper fraction)

(22) Which of the following is both a happy and a perfect number, 7, 28, or 42? _____

(23) $30603 \div 101 =$ _____

(24) How many positive integral divisors does 64 have? _____

(25) If $f(x) = x^2 - 10x + 25$ then $f(37)$ is _____

(26) If $4x + 3 = 2$ then $2x - 2 =$ _____

(27) 86 base ten is equivalent to _____ base 5

(28) The sum of the roots of $2x^2 + 3x = 5$ is _____

(29) The area of a square is $12\frac{1}{4}$ square inches. The perimeter of this square is _____ inches

*(30) $\sqrt{488} \times 221 =$ _____

(31) $(15 + 16 \times 17) \div 7$ has a remainder of _____

(32) The multiplicative inverse of -1.25 is _____

(33) $|-1-1| + |-2+3| - |5-8| =$ _____

(34) $4 \times 4! - 12 \times 3! =$ _____

(35) $2\frac{3}{5} \times 2\frac{2}{5} =$ _____ (mixed number)

(36) The set {L, U, C, A, S} has ____ proper subsets

(37) $4^2 + 3^3 + 2^4 =$ _____

(38) $\sqrt{243} - \sqrt{75} = \sqrt{x}$. Find x. _____

(39) If set A has 6 elements, set B has 5 elements, and $A \cap B$ has 4 elements, then $A \cup B$ has _____ elements.

*(40) 224488 ÷ 111 = _____

(41) If P is 20% of Q and Q is 25% of R, then P is what percent of R? _____%

(42) 113 × 212 = _____

(43) If $x + y = 2$ and $xy = 2$ then $x^3 + y^3 =$ _____

(44) $\frac{3}{4} - \frac{10}{13} =$ _____

(45) ..., $-1\frac{1}{3}, -\frac{2}{3}$, x, y, ... is an arithmetic sequence. Find the value of y. _____

(46) $\frac{7}{40} =$ _____ % (decimal)

(47) Find the harmonic mean of 2 and 5. _____

(48) The least integer x such that $3 - 5x < 2$ is ____

(49) 95 °F = _____ °C

*(50) $125 \times 37.5 \div \frac{5}{8} =$ _____

(51) The probability of drawing a Queen or a King from a standard 52 card deck is _____

(52) ${}_5P_3 + {}_5P_2 =$ _____

(53) 45 degrees = $\frac{\pi}{k}$ radians. Find k. _____

(54) $(2 + 7i)(2 - 7i) = a + bi$. Find $a + b$. _____

(55) $\sin(\frac{\pi}{3}) \times \cos(\frac{\pi}{6}) =$ _____

(56) The vertex of the parabola $y = x^2 - 6x + 3$ is (h, k). Find h. _____

(57) The eleventh term of 6, 11, 16, 21,... is _____

(58) The largest number of regions created by five intersecting lines is _____

(59) $1 - 4 + 9 - 16 + 25 - 36 + ... - 64 =$ _____

*(60) $e^{(e)} \times \pi^{(\pi)} =$ _____

(61) $44_8 \times 4_8 =$ _____ 8

(62) How much time has passed from 3:45 p.m. to 11:15 p.m. the same day? _____ hours

(63) The slope of the line containing the points (— 1, — 2) and (3, 4) is _____

(64) The simplified coefficient of the xy^2 term in the expansion of $(2x + 3y)^3$ is _____

(65) The greatest integer function $g(x) = [2x - 3]$ has a value of _____ for $g(\pi)$

(66) If $\log_x 8 + \log_x 8 = 3$ then x = _____

(67) $\sqrt{2809} =$ _____

(68) $(67_9 + 84_9) \div 8$ has a remainder of _____

(69) If A is 125% of B and B is 120% of C then A is _____% greater than C.

*(70) The area of $20x^2 + 45y^2 = 900$ is _____

(71) The sum of the first 9 terms of the Fibonacci characteristic sequence 1,4,5,9,14,23,... is _____

(72) If $f(x) = 3x - 2$, then $f^{-1}(-1) =$ _____

(73) If $\det \begin{vmatrix} -1 & -2 \\ 3 & x \end{vmatrix} = 5$, then x = _____

(74) $\lim_{x \to 3} \left(\frac{x^2 - 3x}{x - 3}\right) =$ _____

(75) The graph of $f(x) = 2^{(x-2)}$ has a horizontal asymptote at y = _____

(76) If $f(x) = \frac{3x - 1}{2x + 1}$, then $f'(1) =$ _____

(77) $1(1!) + 2(2!) + 3(3!) + 4(4!) =$ _____

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

(79) Given 5966 ÷ 38 = 157. Find $5966 \div 9\frac{1}{2}$. _____

*(80) 3210 miles/hour = _____ feet/second

University Interscholastic League - Number Sense Answer Key HS • SAC • Fall 2009

*number) x – y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 4019

(2) 22099

(3) 6992

(4) 80.4

(5) 1.125, $\frac{9}{8}$, $1\frac{1}{8}$

(6) $10\frac{2}{3}$

(7) $\frac{4}{25}$

(8) 5

(9) .375

*(10) 6583 - 7275

(11) 144

(12) 1728

(13) 40

(14) 736

(15) 144

(16) $\frac{11}{13}$

(17) 3

(18) 1464

(19) 8000

*(20) 32595 – 36025

(21) $\frac{32}{99}$

(22) 28

(23) 303

(24) 7

(25) 1024

(26) $-2.5, -\frac{5}{2}, -2\frac{1}{2}$

(27) 321

(28) $-1.5, -\frac{3}{2}, -1\frac{1}{2}$

(29) 14

*(30) 4638 – 5126

(31) 0

(32) $-.8, -\frac{4}{5}$

(33) 0

(34) 24

(35) $6\frac{6}{25}$

(36) 31

(37) 59

(38) 48

(39) 7

*(40) 1922 – 2123

(41) 5

(42) 23956

(43) – 4

(44) $-\frac{1}{52}$

(45) $\frac{2}{3}$

(46) 17.5

(47) $\frac{20}{7}, 2\frac{6}{7}$

(48) 1

(49) 35

*(50) 7125 – 7875

(51) $\frac{2}{13}$

(52) 80

(53) 4

(54) 53

(55) .75, $\frac{3}{4}$

(56) 3

(57) 56

(58) 16

(59) – 36

*(60) 525 – 580

(61) 220

(62) 7.5, $\frac{15}{2}, 7\frac{1}{2}$

(63) 1.5, $\frac{3}{2}, 1\frac{1}{2}$

(64) 54

(65) 3

(66) 4

(67) 53

(68) 1

(69) 50

*(70) 90 – 98

(71) 250

(72) $\frac{1}{3}$

(73) 1

(74) 3

(75) 0

(76) $\frac{5}{9}$

(77) 119

(78) $\frac{19}{3}, 6\frac{1}{3}$

(79) 628

*(80) 4473 – 4943

The University Interscholastic League
Number Sense Test ● HS Invitational A ● 2010

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(1) $210 + 21 - 2010 =$ _____

(2) $\frac{3}{8} \times \frac{4}{9} =$ _____

(3) $\$20.10 \div 3 = \$$ _____

(4) $2.01 - 2\frac{1}{10} + 21 =$ _____ (decimal)

(5) $\frac{4}{9} \div .3 =$ _____

(6) $44\% =$ _____ (proper fraction)

(7) $9 \times 6 \div 3 - 6 + 9 =$ _____

(8) $34 \times 43 =$ _____

(9) $63 \times 15 - 82 \times 15 =$ _____

***(10)** $753 - 936 + 842 =$ _____

(11) $17^2 =$ _____

(12) If 8 ounces of M&M's costs \$1.10 then $1\frac{1}{2}$ pounds of M&M's will cost \$_____

(13) The GCD of 48 and 57 is _____

(14) $(58 + 79 + 66) \div 4$ has a remainder of _____

(15) $2\frac{1}{2}$ bushels is equivalent to _____ pecks

(16) The median of 1, 5, 2, 3, 3, 2, 1, & 4 is _____

(17) The greatest prime number less than 99 is ____

(18) $11^3 =$ _____

(19) MMX ÷ V = _____ (Arabic Numeral)

***(20)** $\sqrt{1243} \times 3421 =$ _____

(21) 66% of 44 is 22% of _____

(22) Which of the following is both a composite number and an evil number, 4, 9, or 11? _____

(23) $235 \times 14 =$ _____

(24) 48 has _____ positive integral divisors

(25) 10 plus x is the same as tripling x. x = _____

(26) Let $k = \sqrt{7} + \sqrt{5}$. Truncate k to two decimal places. _____(decimal)

(27) $.333... - .1666... + .08333... =$ _____

(28) $(26 \times 24 - 22) \div 7$ has a remainder of _____

(29) 25836k is divisible by 6. Find $k > 0$. _____

***(30)** $30456 \div 141 =$ _____

(31) If set A has 6 elements, $A \cap B$ has 3, and $A \cup B$ has 9, then set B has _____ elements.

(32) $2 + 1 + 3 + 4 + 7 + ... + 47 =$ _____

(33) $|-6-1|+|-5+2|-|4-3| =$ _____

(34) $\sqrt{125}+\sqrt{20}=\sqrt{x}$. Find x. _____

(35) The discriminant of $6x^2+7x+2=0$ is _____

(36) Picture A is 8" by 10" and B is 9" by 12". The ratio of A's perimeter to B's perimeter is _____

(37) Find k if $67^2-59^2=16k$. k = _____

(38) $5\times 5!+20\times 4! =$ _____

(39) $7\frac{4}{9}\times 7\frac{5}{9}$ = _____ (mixed number)

*(40) 400 log 800 = _____

(41) $(13)^2-(8)(21)$ = _____

(42) $38\times 11+33\times 24$ = _____

(43) If $x+y=-1$ and $xy=2$ then $x^3+y^3=$ _____

(44) The x-intercept of the line $3x-4y=5$ is (h, k). Find h. _____

(45) The product of the roots of $x^4+2x^3-9x^2-2x+8=0$ is _____

(46) $\frac{7}{20}-\frac{22}{59}=$ _____

(47) The arithmetic mean of 17, 22, and 25 is _____

(48) Given $1690\div 26=65$. Find $1690\div 5\frac{1}{5}$. _____

(49) 25 °C = _____ °F

*(50) $833\times 2.5\div\frac{5}{12}=$ _____

(51) The odds of drawing an ace from a standard 52 card deck is _____

(52) The legs of a right △ are 8 and 15. The length of the altitude to the hypotenuse is _____

(53) A convex octagon has _____ distinct diagonals

(54) $123_6-45_6=$ _____ 6

(55) $(2-5i)(2-5i)=(a+bi)$. Find a. _____

(56) If $\log_2(7x+4)=5$ then x = _____

(57) The set {e,m,p,t,y} has ____ 3–element subsets

(58) 8 intersecting lines create at most ____ regions

(59) $7^2-6^2+5^2-4^2+...+1=$ _____

*(60) $8^3\div 4^6\times 2^{10}=$ _____

(61) $(66_9)(77_9)\div 8$ has a remainder of _____

(62) If $\log_5 x-\log_5 8=1$ then x = _____

(63) If A is $\frac{2}{3}$ of B and B is 60% of C then A is what fractional part of C? _____ (proper fraction)

(64) How many ways can Larry, Mo, and Curly sit in a row of five chairs? _____

(65) The greatest integer function $g(x)=[3-2x]$ has a value of _____ for $g(\pi)$

(66) $2!+3!+4!\cong x \pmod 5$ & $0\le x\le 4$. x = ___

(67) $\sqrt{12544}$ = _____

(68) 2 sin 105 ° cos 105 ° = _____

(69) $3+4+7+11+18+29+...+123=$ _____

*(70) The area of $40x^2+45y^2=1800$ is _____

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

(72) $1(1!)+2(2!)+3(3!)+...+6(6!)=$ _____

(73) Let $f(x)=\sqrt{3-4x}$ be a real valued function, where $x\in$ {Reals}. The domain of f(x) is $\{x \mid x\le$ _____$\}$

(74) $\int_0^1 \sqrt{x}\ dx =$ _____

(75) If h(x) is the slant asymptote of $f(x)=\frac{x^2-3x+1}{x-3}$, then h(1) = _____

(76) If $f(x)=x^4+x^2-x$, then $f''(-3)=$ _____

(77) If csc $\theta=1.2$ then sin θ = _____

(78) $\lim_{x\to 0}\left(\frac{\sin 3x}{x}\right)=$ _____

(79) $f(x)=5x-6$ and $g(x)=3x-4$. $f(g(2))=$ _____

*(80) 6666 feet/second = _____ miles/hour

University Interscholastic League - Number Sense Answer Key HS ● Invitation A ● 2010

***number) x — y means an integer between x and y inclusive**

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) — 1779

(2) $\frac{1}{6}$

(3) $6.70

(4) 20.91

(5) $\frac{40}{27}$, $1\frac{13}{27}$

(6) $\frac{11}{25}$

(7) 21

(8) 1462

(9) — 285

***(10) 627 — 691**

(11) 289

(12) $3.30

(13) 3

(14) 3

(15) 10

(16) 2.5, $\frac{5}{2}$, $2\frac{1}{2}$

(17) 97

(18) 1331

(19) 402

***(20) 114581 – 126642**

(21) 132

(22) 9

(23) 3290

(24) 10

(25) 5

(26) 4.88

(27) .25, $\frac{1}{4}$

(28) 0

(29) 6

***(30) 206 — 226**

(31) 6

(32) 122

(33) 9

(34) 245

(35) 1

(36) $\frac{6}{7}$

(37) 63

(38) 1080

(39) $56\frac{20}{81}$

***(40) 1104 — 1219**

(41) 1

(42) 1210

(43) 5

(44) $\frac{5}{3}$, $1\frac{2}{3}$

(45) 8

(46) — $\frac{27}{1180}$

(47) $\frac{64}{3}$, $21\frac{1}{3}$

(48) 325

(49) 77

***(50) 4749 — 5247**

(51) $\frac{1}{12}$

(52) $\frac{120}{17}$, $7\frac{1}{17}$

(53) 20

(54) 34

(55) — 21

(56) 4

(57) 10

(58) 37

(59) 28

***(60) 122 — 134**

(61) 0

(62) 40

(63) $\frac{2}{5}$

(64) 60

(65) — 4

(66) 2

(67) 112

(68) — .5, — $\frac{1}{2}$

(69) 318

***(70) 127 — 139**

(71) 23

(72) 5039

(73) .75, $\frac{3}{4}$

(74) $\frac{2}{3}$

(75) 1

(76) 110

(77) $\frac{5}{6}$

(78) 3

(79) 4

***(80) 4318 — 4772**

The University Interscholastic League
Number Sense Test • HS Invitational B • 2010

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(1) $3141 - 2718 + 1618 =$ _____

(2) $\frac{3}{5} \div \frac{21}{25} =$ _____

(3) $\$15.15 \times 4 = \$$ _____

(4) $\frac{22}{25} =$ _____ %

(5) $1\frac{1}{6} \div .08333... =$ _____

(6) $3.4 + 2\frac{3}{10} - 1 =$ _____ (decimal)

(7) $77 \div 25 + 123 \div 25 =$ _____

(8) $54 \times 45 =$ _____

(9) $8 \div 4 - 2 + 4 \times 8 =$ _____

*(10) $2468 + 3579 + 1001 =$ _____

(11) $14^2 =$ _____

(12) $14^3 =$ _____

(13) The LCM of 48 and 57 is _____

(14) $(34 \times 56 - 78) \div 9$ has a remainder of _____

(15) 1 acre is equivalent to _____ square feet

(16) The mode of 1, 3, 2, 3, 4, 2, 1, & 3 is _____

(17) DLV × CXI = _____ (Arabic Numeral)

(18) How many elements are in $\{x \mid 30 < x < 40, \text{where } x \in \{\text{Primes}\}\}$? ____

(19) If a 6-pack of 12 oz. cans of soda costs $4.50 then one 12 oz. can will cost $ _____

*(20) $\sqrt{678} \times \sqrt{1154} =$ _____

(21) 115% of 15 is _____

(22) If $x - 4 = 2$, then $4x + 2 =$ _____

(23) $122 \times 16 =$ _____

(24) Round $\sqrt{8} - \sqrt{2}$ to the tenths place. _____

(25) What number multiplied by 12 and added to 33 gives the same results? _____

(26) $8\frac{3}{11} \times 8\frac{8}{11} =$ _____ (mixed number)

(27) $1.777... - 1.555... + 1.333... =$ _____

(28) $2 + 1 + 3 + 4 + 7 + ... + 47 + 76 =$ _____

(29) 25836k is divisible by 8. Find $k > 0$. _____

*(30) $783209 \div 247 =$ _____

(31) $5! \times 6 + 6! \times 4 =$ _____

(32) $|-8| - 1 + |4| - 3|-2-5| =$ _____

(33) Which of the following numbers is both abundant and unlucky, 24, 25, or 28? _____

(34) $\sqrt{192} - \sqrt{75} = \sqrt{x}$. Find x. _____

(35) The discriminant of $4x^2 + 19x - 2 = 0$ is ____

(36) Set A has 8 elements, set B has 12, $A \cap B$ has 5, and $A \cup B$ has k. Find k. _____

(37) Find k if $74^2 - 66^2 = 8k$. k = _____

(38) 12 is to 18 as 15 is to _____ (decimal)

(39) The sum of the positive integral divisors of 108 is _____

*(40) $16 \times 16 \times 16 \times 16$ = _____

(41) The slope of the line $6x + 2y = 8$ is _____

(42) $28 \times 45 - 15 \times 34$ = _____

(43) 40 °C = _____ °F

(44) $(34)^2 - (21)(55)$ = _____

(45) The sum of the product of the roots taken two at a time of $x^4 - 2x^3 - 13x^2 + 14x = -24$ is ____

(46) $\frac{3}{5} - \frac{25}{39}$ = _____

(47) The geometric mean of 8, 25, and 40 is _____

(48) Given $1190 \div 34 = 35$. Find $1190 \div 4.25$. _____

(49) If $x - y = 3$ and $xy = 3$ then $x^3 - y^3$ = _____

*(50) $798 \times 1.0625 \div \frac{17}{20}$ = _____

(51) The probability of randomly selecting a vowel from the elements of {p, r, o, d, u, c, t} is _____

(52) The legs of a right △ are 5 and 12. The length of the altitude to the hypotenuse is _____

(53) Find the next term of the geometric sequence $-1\frac{2}{3}, \frac{2}{3}, -\frac{4}{15}, \cdots$. _____

(54) $222_4 - 33_4$ = _____ 4

(55) $(4 - 7i)(4 + 7i) = (a + bi)$. Find $a + b$. _____

(56) If $\log_{16}(4x) = \frac{3}{4}$ then x = _____

(57) The complex conjugate of $3 + 4i$ is $3 +$ _____ i.

(58) $888 \times \frac{24}{37}$ = _____

(59) $2^2 + 1^2 + 3^2 + 4^2 + 7^2$ = _____

*(60) $(3.1\pi)(2.7e)\left(\frac{1+\sqrt{5}}{2}\right)$ = _____

(61) $(65_8) + (54_8) \div 7$ has a remainder of _____

(62) If $\log_4 2x + \log_4 3 = 2$ then x = _____

(63) $1.5P = \frac{1}{5}Q$ and 40% of Q = R. R is ____% of P.

(64) How many ways can Snow White and the seven dwarfs be seated at the round table? _____

(65) The greatest integer function $g(x) = [1 - x]$ has a value of _____ for $g(\sqrt{3})$

(66) $\frac{5!}{2! + 3!} \cong x \pmod 7$ & $0 \leq x \leq 6$. x = _____

(67) $\sqrt{42436}$ = _____

(68) $\cos^2(150°) - \sin^2(150°)$ = _____

(69) $2 + 5 + 8 + 11 + 14 + \ldots + 44$ = _____

*(70) The volume of a sphere with a diameter of 12 cm is _____ cu. cm

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

(72) $4(4!) - 3(3!) - 2(2!) - 1(1!)$ = _____

(73) The slope of the line tangent to $y = 3x^2 - x + 2$ at (1, 4) is _____

(74) $\int_{-1}^{1} (x + 1)\,dx$ = _____

(75) If h(x) is the slant asymptote of $f(x) = \frac{4x^2+5x+6}{2x+1}$, then h(— 3) = _____

(76) $\sum_{0}^{3} (2x - 1)$ = _____

(77) $f(x) = 7 - 3x$ and $g(x) = 6 + 2x$. $f(g(-1))$ = ____

(78) 4141×1001 = _____

(79) Change .33 base 6 to a base ten decimal. _____

*(80) 5300 inches/second = _____ miles/hour

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NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 2041

(2) $\frac{5}{7}$

(3) $60.60

(4) 88

(5) 14

(6) 4.7

(7) 8

(8) 2430

(9) 32

*(10) 6696 — 7400

(11) 196

(12) 2744

(13) 912

(14) 8

(15) 43560

(16) 3

(17) 61605

(18) 2

(19) $ .75

*(20) 841 — 928

(21) 17.25, $\frac{69}{4}$, $17\frac{1}{4}$

(22) 26

(23) 1952

(24) 1.4, $\frac{7}{5}$, $1\frac{2}{5}$

(25) 3

(26) $72\frac{24}{121}$

(27) $\frac{14}{9}$, $1\frac{5}{9}$

(28) 198

(29) 8

*(30) 3013 — 3329

(31) 3600

(32) — 10

(33) 24

(34) 27

(35) 393

(36) 15

(37) 140

(38) 22.5

(39) 280

*(40) 62260 — 68812

(41) — 3

(42) 750

(43) 104

(44) 1

(45) — 13

(46) $-\frac{8}{195}$

(47) 20

(48) 280

(49) 54

*(50) 948 — 1047

(51) $\frac{2}{7}$

(52) $\frac{60}{13}$, $4\frac{8}{13}$

(53) $\frac{8}{75}$

(54) 123

(55) 65

(56) 2

(57) — 4

(58) 576

(59) 79

*(60) 110 — 121

(61) 6

(62) $\frac{8}{3}$, $2\frac{2}{3}$

(63) 300

(64) 5040

(65) — 1

(66) 3

(67) 206

(68) .5, $\frac{1}{2}$

(69) 345

*(70) 860 — 950

(71) — 11

(72) 73

(73) 5

(74) 2

(75) — 4.5, $-\frac{9}{2}$, $-4\frac{1}{2}$

(76) 8

(77) — 5

(78) 4145141

(79) $\frac{7}{12}$

*(80) 287 — 316

2009-10 TMSCA High School Number Sense Test 6

(1) $102 - 9002 =$ _____

(2) $25 \times 2010 =$ _____

(3) $20.09 + 2.010 =$ _____ (decimal)

(4) $\frac{5}{7} \div \frac{15}{28} =$ _____

(5) $2010 \div 11$ has a remainder of _____

(6) $5\frac{2}{3} + 4\frac{3}{4} =$ _____ (mixed number)

(7) $(-8.75) \div (2.5) =$ _____ (decimal)

(8) $\frac{1}{12} =$ _____ %

(9) $24^2 =$ _____

*(10) $4554 - 5665 - 6776 =$ _____

(11) $20 \div (16 - 12) + 8 \times 4 =$ _____

(12) 1 yard $\times$ 2 yards $\times$ 3 yards = _____ cubic feet

(13) $3\frac{4}{5} - 8\frac{9}{10} =$ _____ (mixed number)

(14) $12^3 =$ _____

(15) DLV + MCDLV = _____ (Arabic Numeral)

(16) The LCM of 16, 24, and 32 is _____

(17) The number of positive prime integers that divide 60 is _____

(18) $1764 = 42 \times$ _____

(19) 2 rods is equivalent to _____ feet

*(20) $\sqrt{7766} =$ _____

(21) $73 \times \frac{73}{75} =$ _____ (mixed number)

(22) Which of the following is both a prime number and an odious number, 5, 7, or 9? _____

(23) If 3 keys cost \$1.25 then 15 keys cost \$ _____

(24) $756453 \div 4$ has a remainder of _____

(25) What number subtracted from 24 and multiplied by 5, gives the same results? _____

(26) The 11th triangular number is _____

(27) Let $k = \sqrt{2} + \sqrt{3}$. Truncate k to two decimal places. _____ (decimal)

(28) $|-6-5| + |-4+3|-2|-1| =$ _____

(29) The set {f,o,r,t,y} has _____ 4-elements subsets

*(30) $959 \times 626 =$ _____

(31) $45_6 + 53_6 =$ _____ $_6$

(32) If $8 - x = 3$, then $3x - 8 =$ _____

(33) $1^2 + 3^2 + 4^2 + 7^2 + 11^2 =$ _____

(34) $3 \times 3! - 12 \times 4! =$ _____

(35) $7\frac{1}{6} \times 7\frac{5}{6} =$ _____ (mixed number)

(36) $\{p,o,w,e,r\} \cup \{s,e,t\}$ has _____ distinct elements

(37) Find k if $43^2 - 39^2 = 8k$. $k =$ _____

(38) If $\sqrt{5 - \sqrt{3 + \sqrt{x}}} = 1$ then $x =$ _____

(39) If set A has 5 elements, set B has 4 elements, and $A \cup B$ has 6 elements, then the number of elements in $A \cap B$ is _____

*(40) $8\frac{1}{3}\% \times 173 \div 6\frac{1}{4}\% =$ _____

(41) The slope of the line $x + 2y = 4$ is _____

(42) $233 \times 112 =$ _____

(43) If $x - y = -1$ and $xy = 2$ then $x^3 - y^3 =$ _____

(44) $11_4 + 22_4 + 33_4 =$ _____ 10

(45) If ..., 4.5, 1.5, x, y, ... is a geometric sequence, then the value of y is _____

(46) The product of the roots of $x^3 + x^2 - 5x + 3 = 0$ is _____

(47) Find the geometric mean of 4 and 16. _____

(48) The legs of a right $\triangle$ are 5 and 12. The length of the altitude to the hypotenuse is _____

(49) 40 °C = _____ °F

*(50) $19 \times 109 + 109 \times 21 =$ _____

(51) The number of distinct diagonals of a convex pentagon is _____

(52) Given $8424 \div 36 = 234$. Find $8424 \div 7\frac{1}{5}$. _____

(53) 0.444... — .151515... _____

(54) The simplified coefficient of the x^2y term in the expansion of $(x - 3y)^3$ is _____

(55) $\sin(\frac{\pi}{3}) \div \cos(\frac{5\pi}{6}) =$ _____

(56) If $\log_4(2^x) = 3$ then $x =$ _____

(57) $(21)^2 - (13)(34) =$ _____

(58) The largest number of regions created by six intersecting lines is _____

(59) $1 - 2^2 + 3^2 - 4^2 + 5^2 - \ldots + 9^2 =$ _____

*(60) $714.2857 \times 246 =$ _____

(61) If $f(x) = 2x - 5$ and $g(x) = 4x + 3$, then $f(g(-1)) =$ _____

(62) How much time has passed from 8:20 a.m. to 3:15 p.m. the same day? _____ hours

(63) If A is 70% of B and B is 130% of C then A is _____% less than C.

(64) If $\log_x 50 - \log_x 2 = 2$ then $x =$ _____

(65) How many ways can Romeo and Juliet sit in a row of four chairs? _____

(66) $\cos^2 30° - \sin^2 30° =$ _____

(67) $\sqrt{3844} =$ _____

(68) $(53_6)(45_6) \div 5$ has a remainder of _____

(69) $\begin{vmatrix} 1 & 3 \\ 2 & 4 \end{vmatrix} - \begin{vmatrix} 4 & 1 \\ 3 & 2 \end{vmatrix} = \begin{vmatrix} a & c \\ b & d \end{vmatrix}$. Find $a - d$. _____

*(70) $31.41 \times e + 27.18 \times \pi =$ _____

(71) The largest value of k such that ${}_6C_k = 15$ is _____

(72) $\lim_{x \to 4} \frac{\sqrt{x} - 2}{x - 4} =$ _____

(73) If $f(x) = \sqrt{2 - 5x}$, where x, $f(x) \in \{\text{Reals}\}$ then the range of f(x) is $\{f(x) | f(x) \geq$ _____$\}$

(74) $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} =$ _____

(75) The graph of $f(x) = 3^{(\frac{3}{x})}$ has a horizontal asymptote at $y =$ _____

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

(77) $1(1!) + 2(2!) + 3(3!) + \ldots + 5(5!) =$ _____

(78) $\int_0^1 (-x)^3 \, dx =$ _____

(79) Change .22 base 4, to a base ten decimal. _____

*(80) 4444 feet/second = _____ miles/hour

2009-10 TMSCA High School Number Sense Test 6 - Answer Key

*number) x — y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) — 8900

(2) 50250

(3) 22.1

(4) $\frac{4}{3}, 1\frac{1}{3}$

(5) 8

(6) $10\frac{5}{12}$

(7) — 3.5

(8) $\frac{25}{3}, 8\frac{1}{3}$

(9) 576

*(10) — 8281 – —7492

(11) 37

(12) 162

(13) $-5\frac{1}{10}$

(14) 1728

(15) 2010

(16) 96

(17) 3

(18) 42

(19) 33

*(20) 84 — 92

(21) $71\frac{4}{75}$

(22) 7

(23) $6.25

(24) 1

(25) 4

(26) 66

(27) 3.14

(28) 10

(29) 5

*(30) 570318 – 630350

(31) 142

(32) 7

(33) 196

(34) — 270

(35) $56\frac{5}{36}$

(36) 7

(37) 41

(38) 169

(39) 3

*(40) 220 — 242

(41) — .5, $-\frac{1}{2}$

(42) 26096

(43) — 7

(44) 30

(45) $\frac{1}{6}$

(46) — 3

(47) 8

(48) $\frac{60}{13}, 4\frac{8}{13}$

(49) 104

*(50) 4142 — 4578

(51) 5

(52) 1170

(53) $\frac{29}{99}$

(54) — 9

(55) — 1

(56) 6

(57) — 1

(58) 22

(59) 45

*(60) 166929 — 184499

(61) — 7

(62) $\frac{83}{12}, 6\frac{11}{12}$

(63) 9

(64) 5

(65) 12

(66) .5, $\frac{1}{2}$

(67) 62

(68) 2

(69) — 5

*(70) 163 — 179

(71) 4

(72) .25, $\frac{1}{4}$

(73) 0

(74) $\frac{1}{6}$

(75) 1

(76) — 10

(77) 719

(78) $-\frac{1}{4}$

(79) .625

*(80) 2879 — 3181

2009-10 TMSCA High School Number Sense Test 13

(1) $15 \times 222 =$ _____

(2) $2345 + 3210 =$ _____

(3) $135 - 246 =$ _____

(4) $2010 \div 25 =$ _____

(5) 192837 ÷ 11 has a remainder of _____

(6) $4\frac{1}{8} - 2\frac{1}{4} =$ _____ (mixed number)

(7) $(-3.2) \times (0.32) =$ _____ (decimal)

(8) $\frac{3}{16} =$ _____ % (decimal)

(9) $15 \div (12 - 9) + 6 \times 3 =$ _____

*(10) $6879 - 345 + 21 =$ _____

(11) $1\frac{2}{3} \times 2\frac{3}{4} =$ _____ (mixed number)

(12) 2 feet 8 inches + 1 foot 10 inches = _____ yards

(13) $15^2 =$ _____

(14) $15^3 =$ _____

(15) MMX ÷ XV = _____ (Arabic Numeral)

(16) The GCF of 32, 48, and 96 is _____

(17) The sum of the proper divisors of 76 is _____

(18) 63 = 3969 ÷ _____

(19) A half mile is equivalent to _____ rods

*(20) $\sqrt{19283} =$ _____

(21) $12 \times 345 =$ _____

(22) One-third of what number gives the same results as that number minus 6? _____

(23) If 4 CDs cost $50.00 then 10 CDs cost $ _____

(24) $66 \times \frac{66}{71} =$ _____ (mixed number)

(25) Which of the following is an evil number, 11, 13, or 15? _____

(26) The total number of 1-element subsets and 4-element subsets of the set {r,o,u,n,d} is _____

(27) Let $k = \sqrt{5} + \sqrt{6}$. Truncate k to one decimal place. _____ (decimal)

(28) $|-1| - 1 + |-2| + 3 - 5 \cdot |-8| =$ _____

(29) The 3rd hexagonal number is _____

*(30) $8888 \times 777 =$ _____

(31) $123_4 \times 3_4 =$ _____ 4

(32) If $3x + 5 = 1$, then $6x - 1 =$ _____

(33) $1^2 + 5^2 + 6^2 + 11^2 =$ _____

(34) $5 \times 4! + 20 \times 3! =$ _____

(35) $10\frac{3}{5} \times 5\frac{4}{5} =$ _____ (mixed number)

(36) {l,i,n,e} ∩ {s,l,o,p,e} has _____ distinct elements

(37) Find k if $53^2 - 57^2 = 4k$. k = _____

(38) If $\sqrt{4 - \sqrt{2 + \sqrt{x - 1}}} = 1$ then x = _____

(39) The units digit of 7^7 is _____

*(40) $16\frac{2}{3}\% \times 238 \div \frac{1}{12} =$ _____

(41) The slope of the line containing the points (— 2, 3) and (4, — 5) is _____

(42) $114 \times 411 =$ _____

(43) The sum of the product of the roots taken two at a time of $x^3 + x^2 - 5x + 3 = 0$ is _____

(44) $1111_4 + 222_5 + 33_6 =$ _____ 10

(45) If ..., 2.4, x, 0.6, y, ... is a geometric sequence, then the value of x + y is _____

(46) If x + y = 7 and xy = 2 then $x^3 + y^3 =$ _____

(47) 86 °F = _____ °C

(48) One leg of a right △ is 40 and the hypotenuse is 41. The length of the other leg is _____

(49) Find the harmonic mean of 4 and 16. _____

*(50) 5380 ÷ 18 + 6602 ÷ 22 = _____

(51) $(89)^2 - (55)(144) =$ _____

(52) Given $648 \times 3\frac{3}{4} = 2430$. Find 648×11.25. ____

(53) 0.212121... ÷ .090909... = _____

(54) A convex polygon has 14 distinct diagonals. How many sides does it have? _____

(55) $\tan(\frac{\pi}{6}) \times \cot(\frac{\pi}{3}) =$ _____

(56) If $\log_9(3^x) = 3$ then x = _____

(57) The simplified coefficient of the x^2y^2 term in the expansion of $(2x + y)^4$ is _____

(58) If (4 + 3i) ÷ 2i = a + bi, then a = _____

(59) ${}_6P_3 - {}_6C_3 =$ _____

*(60) $857.142 \times 279.2 =$ _____

(61) If f(x) = 5 — 2x, then $f^{-1}(3) =$ _____

(62) How much time has passed from 11:35 a.m. to 2:25 p.m. the same day? _____ minutes

(63) If P is $\frac{3}{4}$ of Q and Q is $\frac{2}{3}$ of R then R is what percent of P? _____ %

(64) If $\log_x 50 + \log_x 8 = 2$ then x = _____

(65) How many words, real or imaginary, can be made from the letters C,A,L,C,U,L,U,S ? ____

(66) $\cos^2(\frac{3\pi}{2}) + \sin^2(\frac{3\pi}{2}) =$ _____

(67) $\sqrt{5329} =$ _____

(68) $(87_{11})(79_{11}) \div 10$ has a remainder of _____

(69) $\begin{vmatrix} 1 & 1 \\ 2 & 3 \end{vmatrix} + \begin{vmatrix} 2 & 1 \\ 3 & 4 \end{vmatrix} = \begin{vmatrix} a & c \\ b & d \end{vmatrix}$. Find b + c. _____

*(70) $(3.14)^e \times (2.718)^\pi =$ _____

(71) $\sum_{1}^{4} x^2 - 1 =$ _____

(72) $\lim_{x \to 5} \frac{x^2 - 8x + 15}{x - 5} =$ _____

(73) Set $U = \{x \mid x \in \{\text{Integers}\}, -3 < x < 5\}$ is the universal set and set $A = \{0,1,2\}$. How many elements are in set A' ? _____

(74) The probability of rolling a factor of 6 on a single die is _____

(75) $f(x) = \frac{3 - 4x}{x - 5}$ has how many asymptotes? ____

(76) If $f(x) = x^2 - 8x + 15$, then $f'(-1) =$ _____

(77) 2(1!) + 3(2!) + 4(3!) + 5(4!) + 6(5!) = _____

(78) $\int_{-1}^{4} (2x)\, dx =$ _____

(79) Change .34 base 5, to a base ten fraction. ____

*(80) 5432 miles/hour = _____ feet/second

009-10 TMSCA High School Number Sense Test 13- Answer Key

number) x — y means an integer between x and y inclusive

OTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 3330

(2) 5555

(3) — 111

(4) 80.4, $\frac{402}{5}$, $80\frac{2}{5}$

(5) 7

(6) $1\frac{7}{8}$

(7) — 1.024

(8) 18.75

(9) 23

*(10) 6228 – 6882

(11) $4\frac{7}{12}$

(12) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(13) 225

(14) 3375

(15) 134

(16) 16

(17) 64

(18) 63

(19) 160

*(20) 132 — 145

(21) 4140

(22) 9

(23) $125.00

(24) $61\frac{25}{71}$

(25) 15

(26) 10

(27) 4.6

(28) — 35

(29) 15

*(30) 6,560,678 – 7,251,274

(31) 1101

(32) — 9

(33) 183

(34) 240

(35) $61\frac{12}{25}$

(36) 2

(37) — 110

(38) 50

(39) 3

*(40) 453 — 499

(41) $-\frac{4}{3}$, $-1\frac{1}{3}$

(42) 46854

(43) — 5

(44) 168

(45) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(46) 301

(47) 30

(48) 9

(49) 6.4, $\frac{32}{5}$, $6\frac{2}{5}$

*(50) 570 — 628

(51) 1

(52) 7290

(53) $\frac{7}{3}$, $2\frac{1}{3}$

(54) 7

(55) $\frac{1}{3}$

(56) 6

(57) 24

(58) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(59) 100

*(60) 227349 — 251279

(61) 1

(62) 170

(63) 200

(64) 20

(65) 5040

(66) 1

(67) 73

(68) 0

(69) 7

*(70) 493 — 544

(71) 26

(72) 2

(73) 4

(74) $\frac{2}{3}$

(75) 2

(76) — 10

(77) 872

(78) 15

(79) $\frac{19}{25}$

*(80) 7569 — 8365

2009-10 TMSCA High School State Meet

(1) $1002 - 2010 =$ _____

(2) $2010 \div 5 =$ _____

(3) $2010 \times 11 =$ _____

(4) $1212 + 2121 =$ _____

(5) $\frac{4}{7} \times \frac{21}{22} =$ _____

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

(7) $\frac{5}{16} =$ _____ % (decimal)

(8) $55 + (44 - 33) \times 22 \div 11 =$ _____

(9) $27^2 =$ _____

*(10) $11 - 2358 + 1321 =$ _____

(11) $42 \times 24 =$ _____

(12) $13^3 =$ _____

(13) $2010 \div 9 =$ _____ (mixed number)

(14) 132 is 200 % of _____

(15) $\frac{3}{4}$ of a peck is equivalent to _____ quarts

(16) Which is larger, $1\frac{5}{12}$ or 1.45? _____

(17) MI + DV − CX = _____ (Arabic Number)

(18) The largest prime divisor of 355 is _____

(19) $4 + 9 + 14 + 19 + \ldots + 49 =$ _____

*(20) $682 \times 484 =$ _____

(21) $3.2131313\ldots =$ _____ (mixed number)

(22) Which of the following is both a happy number and an evil number, 7, 10, or 13? _____

(23) $242 \times 101 =$ _____

(24) $2^6 - 3 + 4^3 = 5^k$. k = _____

(25) If $f(x) = 4x^2 + 28x + 49$ then f(19) is _____

(26) $11\frac{4}{7} \times 11\frac{3}{7} =$ _____ (mixed number)

(27) 68 base ten is equivalent to _____ base 4

(28) The sum of three consecutive integers is 144. The smallest of the three is _____

(29) $|1 - 3| - 2 \cdot |3| + 3 \cdot |-1| =$ _____

*(30) $\sqrt{870} \times 295 =$ _____

(31) $(14 \times 22 - 30) \div 8$ has a remainder of _____

(32) 15 feet per second = _____ yards per minute

(33) A rectangle's perimeter is 48 cm. If its width is $\frac{1}{3}$ of its length, then the area is _____ sq. cm

(34) $\frac{8!}{5!\,4!} =$ _____

(35) Let $5x - 3 = 1$ then $4x + 2 =$ _____

(36) The set {M, A, T, H} has ____ improper subsets

(37) How many positive integral divisors does 88 have? _____

(38) $\sqrt{175} + \sqrt{112} = \sqrt{x}$. Find x. _____

(39) $10111_2 =$ _____ 8

*(40) $16 \times 48 + 24 \times 52 =$ _____

(41) $\frac{57}{71} - \frac{7}{9} =$ _____

(42) The sum of the product of the roots taken three at a time of $x^4 - 2x^3 - 13x^2 + 14x = -24$ is ____

(43) If $x + y = \frac{1}{3}$ and $xy = \frac{1}{9}$ then $x^3 + y^3 =$ _____

(44) If P is 75% of Q and R is $1\frac{1}{2}$ Q's, then P is what percent less than R? _____%

(45) $312 \times 213 =$ _____

(46) ..., x, 0.6, 1.1, 1.6, y, ... is an arithmetic sequence. Find the value of $x + y$. _____

(47) 60 °F = _____ °C

(48) The greatest integer x such that $4 - 3x \geq 2x + 5$ is _____

(49) Find the geometric mean of 1, 2, and 32. ____

*(50) $222 \times 27.1 \times \frac{7}{12} =$ _____

(51) The line of symmetry of the parabola $y = x^2 + 6x + 13$ is $x =$ _____

(52) $10^2 - 9^2 + 8^2 - 7^2 + ... + 2^2 - 1^2 =$ _____

(53) The largest number of regions created by 11 intersecting lines that are coplanar is _____

(54) $134_5 \div 4_5 =$ _____ 5

(55) $\sin(\frac{\pi}{3}) \times \sec(\frac{\pi}{6}) =$ _____

(56) How much time has passed from 7:15 a.m. to 3:45 p.m. the same day? _____ hours

(57) The 18th term of 3, 8, 13, 18, ... is _____

(58) $(3 - 8i)(3 - 8i) = a + bi$. Find $a - b$. _____

(59) $\frac{5\pi}{8}$ radians = _____ degrees

*(60) $\left(\frac{\sqrt{5}+1}{2}\right)^2 (e)^2 (\pi)^2 =$ _____

(61) The probability of winning tournament A is $\frac{7}{12}$. The odds of losing tournament A is _____

(62) ${}_6P_3 + {}_6C_3 =$ _____

(63) M varies inversely with N^2 and $M = 3$ when $N = 5$. If $N = 10$ then $M =$ _____

(64) The sum of the coefficients of the xy^2 term and x^2y term in the expansion of $(x - 3y)^3$ is _____

(65) Let $K = \sqrt{2} + \sqrt{3} + \sqrt{5}$. Truncate K to one decimal place. _____ (decimal)

(66) $(456_7 + 654_7) \div 6$ has a remainder of _____

(67) If $A = 1.2B$ and $A = 2C$ then $B =$ _____% of C.

(68) $\sqrt{19044} =$ _____

(69) $\log 16 \div \log 4 \times \log 100 =$ _____

*(70) The surface area of a sphere with a diameter of 9 inches is _____ sq. inches

(71) The sum of the first 10 terms of the Fibonacci characteristic sequence 2,5,7,12,19,... is _____

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

(73) If $\det \begin{vmatrix} 4 & 2 \\ 3x & -5x \end{vmatrix} = 1$, then $x =$ _____

(74) $\lim_{x \to 2} \left(\frac{x-2}{x^2+x-6}\right) =$ _____

(75) If $f(x) = x^2 + x + 1$, find $f(f(1))$. _____

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

(77) The minimum value of $y = 3x^2 + 4x$ is _____

(78) $\int_{-1}^{2} (1 - x)\, dx =$ _____

(79) The slope of the line tangent to $x^2 + y^2 = 4$ at $y = 2$ is _____

*(80) 898 miles/hour = _____ feet/second

009-10 TMSCA High School State Meet Number Sense - Answer Key

number) x — y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) -1008

(2) 402

(3) 22110

(4) 3333

(5) $\frac{6}{11}$

(6) $2\frac{1}{2}$

(7) 31.25

(8) 77

(9) 729

*(10) $-1077 - -974$

(11) 1008

(12) 2197

(13) $223\frac{1}{3}$

(14) 66

(15) 6

(16) $1.45, \frac{29}{20}, 1\frac{9}{20}$

(17) 1396

(18) 71

(19) 265

*(20) 313584 – 346592

(21) $3\frac{211}{990}$

(22) 10

(23) 24442

(24) 3

(25) 2025

(26) $132\frac{12}{49}$

(27) 1010

(28) 47

(29) -1

*(30) 8267 – 9136

(31) 6

(32) 300

(33) 108

(34) 14

(35) $5.2, \frac{26}{5}, 5\frac{1}{5}$

(36) 1

(37) 8

(38) 567

(39) 27

*(40) 1916 – 2116

(41) $\frac{16}{639}$

(42) -14

(43) $-\frac{2}{27}$

(44) 50

(45) 66456

(46) $2.2, \frac{11}{5}, 2\frac{1}{5}$

(47) $\frac{140}{9}, 15\frac{5}{9}$

(48) -1

(49) 4

*(50) 3334 – 3684

(51) -3

(52) 55

(53) 67

(54) 21

(55) 1

(56) $8.5, \frac{17}{2}, 8\frac{1}{2}$

(57) 88

(58) -7

(59) $112.5, \frac{225}{2}, 112\frac{1}{2}$

*(60) 182 – 200

(61) $\frac{5}{7}$

(62) 140

(63) $.75, \frac{3}{4}$

(64) 18

(65) 5.3

(66) 0

(67) $\frac{500}{3}, 166\frac{2}{3}$

(68) 138

(69) 4

*(70) 242 – 267

(71) 550

(72) $-\frac{1}{3}$

(73) $-\frac{1}{26}$

(74) $.2, \frac{1}{5}$

(75) 13

(76) -8

(77) $-\frac{4}{3}$

(78) $1.5, \frac{3}{2}, 1\frac{1}{2}$

(79) 0

*(80) 1252 – 1382

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Number Sense Test • HS District 1 • 2010

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Contestant's Number _____

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STOP -- WAIT FOR SIGNAL!

(1) $2210 - 1030 =$ _____

(2) $\frac{7}{10} \times \frac{5}{14} =$ _____

(3) $326 \times 11 =$ _____

(4) $\frac{5}{24} \div \frac{3}{4} =$ _____

(5) $36\ \% =$ _____ (proper fraction)

(6) $(2 + 3) - 5 \div 6 \times 4 =$ _____

(7) $17^2 =$ _____

(8) $65 \times 56 =$ _____

(9) $9^3 =$ _____

*(10) $3221 + 4021 - 5112 =$ _____

(11) $4\frac{5}{6} - 2\frac{7}{12} =$ _____ (mixed number)

(12) The GCD of 52 and 78 is = _____

(13) 225 is 150 % of _____

(14) CXI + XLIV = _____ (Arabic Number)

(15) $3\frac{3}{4}$ pecks is equivalent to _____ quarts

(16) The number of positive prime integers that divide 76 is? _____

(17) Which is larger, $-2\frac{2}{5}$ or -2.35. _____

(18) The arithmetic mean of 10, 15, 12, 13, 13, 12, 10, & 14 is = _____ (decimal)

(19) $7 + 12 + 17 + 22 + \ldots + 47 =$ _____

*(20) $\sqrt{8679} =$ _____

(21) 0.120120120... = _____ (proper fraction)

(22) Which of the following is both a composite and an abundant number, 42, 43, or 44? _____

(23) Truncate $(\sqrt{2})(\sqrt{3})$ to the tenths place. ___

(24) A number squared gives the same results as half of it cubed. What is the number? _____

(25) If $f(x) = x^2 + 8x + 16$ then f(26) is _____

(26) 0.08333... + 0.41666... − 0.58333... = _____

(27) $|-1-1| - |2-3| - 5|8| =$ _____

(28) The product of the roots of $3x^2 + 8x = 3$ is ____

(29) 223355k is divisible by 9. Find k. _____

*(30) $6543 \times 876 =$ _____

(31) The diagonal of a square is $3\sqrt{5}$ inches. The area of this square is _____square inches

(32) Find k if $59^2 - 47^2 = 24k$. k = _____

(33) $241_6 - 43_6$ = _____ 6

(34) $5 \times 5! + 35 \times 4!$ = _____

(35) $11\frac{7}{9} \times 11\frac{2}{9}$ = _____ (mixed number)

(36) $(9 + 15 \times 21) \div 8$ has a remainder of _____

(37) The largest number of regions created by nine intersecting lines is _____

(38) $\sqrt{108} - \sqrt{48} = \sqrt{x}$. Find x. _____

(39) Set A has 10 elements, B has 7 elements, and $A \cup B$ has 15 elements. $A \cap B$ has ____ elements

*(40) $79.4 \div \frac{1}{9} \times 133\frac{1}{3}\%$ = _____

(41) $12 \times 39 + 13 \times 34$ = _____

(42) The x-intercept of the line going through (1, 3) and (3, 5) is (x, y). x = _____

(43) If $x + y = \frac{1}{3}$ and $xy = 3$ then $x^3 + y^3$ = _____

(44) 221×133 = _____

(45) The greatest integer x such that $3x + 8 < 4$ is _____

(46) The sum of the product of the roots taken two at a time of $x^4 + 2x^3 - 3x^2 - 4x = -4$ is _____

(47) Find the geometric mean of 4, 6, and 9. _____

(48) $111_2 + 222_3 + 333_4$ = _____ 10

(49) 77 °F = _____ °C

*(50) 248248 ÷ 121 = _____

(51) $(3 + 4i)(5 - 6i) = (a + bi)$. Find a + b. _____

(52) Let $\log_8(x^2) = \frac{2}{3}$, where $x > 0$. x = _____

(53) $1 - 2^2 + 3^2 - 4^2 + 5^2 - \ldots - 10^2$ = _____

(54) ${}_5C_3 - {}_4P_2$ = _____

(55) $\sqrt{15129}$ = _____

(56) If two dice are rolled, the odds that the sum of the faces is 2, 3, or 12 is _____

(57) $\sin(\frac{5\pi}{4}) \times \cos(\frac{5\pi}{4})$ = _____

(58) The number of distinct diagonals of a convex decagon is _____

(59) How much time has passed from 8:20 a.m. to 3:50 p.m. the same day? _____ hours

*(60) $2.72^{(e)} \times 3.14^{(\pi)} \times 1.62^{(\phi)}$ = _____

(61) 480 miles/hour = _____ feet/second

(62) $\begin{vmatrix} 1 & 1 \\ 2 & 3 \end{vmatrix} \times \begin{vmatrix} 2 & 1 \\ 3 & 4 \end{vmatrix} = \begin{vmatrix} a & c \\ b & d \end{vmatrix}$. Find a — d. _____

(63) $(123_5 + 321_5) \div 4$ has a remainder of _____

(64) If sec x = 2 then the value of $\tan^2 x$ is _____

(65) The greatest integer function $g(x) = [2x - 7]$ has a value of _____ for $g(\sqrt{7})$

(66) log 125 — log 25 + log 5 = log _____

(67) The simplified coefficient of the x^2y^3 term in the expansion of $(2x - y)^5$ is _____

(68) $(2!)(3!)(4!) \cong x \pmod 8$ and $0 \leq x \leq 7$. x = ____

(69) How many ways can Huey, Dewey, and Louie sit in a row of four chairs? _____

*(70) The surface area of a right cylinder with a radius of 3" and a height of 4" is _____ sq. in.

(71) Given $3192 \div 11\frac{1}{5} = 285$. Find $3192 \div 56$. ____

(72) $F(x) = \log(3x - 2)$ has an asymptote at x = ____

(73) If $f(x) = \sqrt{3 + 4x}$, where x, $f(x) \in \{\text{Reals}\}$ then the range of f(x) is $\{f(x) | f(x) \geq$ _____$\}$

(74) If $\sin\theta = .8$ then $\cos\theta$ = _____ in QIV

(75) $\sum_0^2 (1 - 3x)$ = _____

(76) $\int_0^2 (x^3)\,dx$ = _____

(77) The minimum value of $y = x^2 + 2x - 3$ is ____

(78) 3434×1001 = _____

(79) Change .34 base 5, to a base ten fraction. _____

*(80) 3.75 square miles = _____ acres

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*number) x — y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 1180

(2) .25, $\frac{1}{4}$

(3) 3586

(4) $\frac{5}{18}$

(5) $\frac{9}{25}$

(6) $\frac{5}{3}$, $1\frac{2}{3}$

(7) 289

(8) 3640

(9) 729

*(10) 2024 — 2236

(11) $2\frac{1}{4}$

(12) 26

(13) 150

(14) 155

(15) 30

(16) 2

(17) $-2.35, -\frac{47}{20}, -2\frac{7}{20}$

(18) 12.375

(19) 243

*(20) 89 — 97

(21) $\frac{40}{333}$

(22) 42

(23) 2.4, $\frac{12}{5}$, $2\frac{2}{5}$

(24) 8

(25) 900

(26) $-\frac{1}{12}$,

(27) −39

(28) −1

(29) 7

*(30) 5,445,085 — 6,018,251

(31) 22.5, $\frac{45}{2}$, $22\frac{1}{2}$

(32) 53

(33) 154

(34) 1440

(35) $132\frac{14}{81}$

(36) 4

(37) 46

(38) 12

(39) 2

*(40) 906 — 1000

(41) 910

(42) −2

(43) $-\frac{80}{27}, -2\frac{26}{27}$

(44) 29393

(45) −2

(46) −3

(47) 6

(48) 96

(49) 25

*(50) 1950 — 2154

(51) 41

(52) 2

(53) −55

(54) −2

(55) 123

(56) $\frac{1}{8}$

(57) .5, $\frac{1}{2}$

(58) 35

(59) 7.5, $\frac{15}{2}$, $7\frac{1}{2}$

*(60) 1146 — 1266

(61) 704

(62) −9

(63) 0

(64) 3

(65) −2

(66) 25

(67) −40

(68) 0

(69) 24

*(70) 126 — 138

(71) 57

(72) $\frac{2}{3}$

(73) 0

(74) .6, $\frac{3}{5}$

(75) −6

(76) 4

(77) −4

(78) 3,437,434

(79) $\frac{19}{25}$

*(80) 2280 — 2520

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STOP -- WAIT FOR SIGNAL!

(1) $2010 + 201 + 20 =$ _____

(2) $\$20.10 \div 5 =$ _____

(3) $112 - 358 =$ _____

(4) $\frac{8}{15} \times \frac{9}{10} =$ _____

(5) $1\frac{3}{8} \div .0625 =$ _____

(6) $2134711 \div 9$ has a remainder of _____

(7) $4 \div (5 + 6 - 7) \times 8 =$ _____

(8) $44 \div 15 + 76 \div 15 =$ _____

(9) $\frac{7}{16} =$ _____ % (decimal)

*(10) $7777 - 888 + 99 =$ _____

(11) $729 \div 27 =$ _____

(12) 9 is what % of 180? _____%

(13) $14^3 =$ _____

(14) The LCM of 52 and 78 is = _____

(15) 160 acres is equivalent to _____ mile(s)

(16) The sum of the proper divisors of 80 is _____

(17) $\{x \mid 40 < x < 50,\ x \in \{\text{Composites}\}\}$ contains how many elements? _____

(18) $2 + 5 + 8 + \ldots + 29 =$ _____

(19) $3\frac{3}{5} - 1\frac{2}{3} =$ _____ (mixed number)

*(20) $\sqrt{359} \times \sqrt{445} =$ _____

(21) $69 \times \frac{69}{73} =$ _____ (mixed number)

(22) Which of the following is an odious number, 63, 31, or 15? _____

(23) $232 \times 18 =$ _____

(24) $3^4 + 2^5 - 4^3 = k^2$. k = _____

(25) The 6^{th} hexagonal number is _____

(26) 80 has _____ positive integral divisors

(27) 105 base ten is equivalent to _____ base 5

(28) The set {s,q,u,a,r,e} has ____ 4-elements subsets

(29) 2583677k is divisible by 11. Find $k > 0$. _____

*(30) $18 \times 54 + 27 \times 36 =$ _____

(31) $245_9 \div 7_9 =$ _____ 9

(32) $1 + 5 + 6 + 11 + 17 + \ldots + 73 + 118 =$ _____

(33) $\frac{9!}{7!\,2!} =$ _____

(34) Given $9248 \div 34 = 272$. Find $9248 \div 8\frac{1}{2}$. _____

(35) $12\frac{12}{49} \div 3\frac{3}{7}$ = _____ (mixed number)

(36) If $4 + x = 3$, then $3x + 4$ = _____

(37) Rectangle A is 8" by 10" and rectangle B is 5" by 6". The ratio of B's area to A's area is _____

(38) Round $\sqrt{8} + \sqrt{7}$ to a whole number. _____

(39) If $A \cap B$ has 8 elements, set B has 6 elements, and $A \cup B$ has 18 elements, then set A has _____ elements.

*(40) $333 \times 23.8 \times \frac{5}{14}$ = _____

(41) $(34)^2 - (21)(55)$ = _____

(42) 15 °C = _____ °F

(43) If $x + y = -2$ and $xy = 5$ then $x^3 + y^3$ = _____

(44) If P is 30% of Q and Q is $\frac{1}{4}$ of R, then P is what percent of R? _____%

(45) The y-intercept of $6x - 2y = 8$ is (x,y). y = _____

(46) The harmonic mean of 2 and 8 is _____

(47) The sum of the product of the roots taken two at a time is $x^3 + x^2 - 5x + 3 = 0$ is _____

(48) $1 - 4 + 9 - 16 + 25 - 36 + \ldots - 100$ = _____

(49) $\frac{59}{67} - \frac{10}{11}$ = _____

*(50) 300 log 300 = _____

(51) 0.444... ÷ 0.161616... = _____

(52) The legs of a right △ are 5 and 12. The length of the altitude to the hypotenuse is _____

(53) $(i)^{36}$ = _____

(54) $\log_6 \sqrt{216}$ = _____

(55) A convex polygon has 27 distinct diagonals. How many sides does it have? _____

(56) The next term of the geometric sequence $-2.5, 1, -\frac{2}{5}, \ldots$ is _____ (decimal)

(57) $(44_7 + 55_7) \div 6$ has a remainder of _____

(58) 225 degrees = $\frac{\pi}{k}$ radians. Find k. _____

(59) $U = \{x \mid -8 < x < 6, x \in \{\text{Odd Integers}\}\}$ is the universal set and $\{-3, 3\} \subset U$. How many elements are in $\{-3, 3\}'$? _____

*(60) $e^{(3.14)} \times \pi^{(2.72)} \times \frac{\sqrt{5}+1}{2}$ = _____

(61) $(\cos \frac{\pi}{6})(\cos \frac{\pi}{3}) - (\sin \frac{\pi}{6})(\sin \frac{\pi}{3})$ = _____

(62) How much time has passed from 10:24 a.m. to 1:15 p.m. the same day? _____ minutes

(63) $f(x) = 4x - 1$ and $g(x) = 2 + 3x$. $g(f(\frac{1}{2}))$ = _____

(64) The sum of the coefficients of the xy^2 and the x^2y terms in the expansion of $(x - y)^3$ is _____

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

(66) The sum of the first 10 terms of the Fibonacci characteristic sequence 2,5,7,12,19,... is _____

(67) $1(0!) + 2(1!) + 3(2!) + 4(3!) + 5(4!)$ = _____

(68) If $Z \div 101 = 212$, then Z = _____

(69) M varies directly with N^2 and M = 18 when N = 3. If N = 6 then M = _____

*(70) 388 miles/hour = _____ feet/second

(71) If $f(x) = \frac{4}{5x+6}$, then $f^{-1}(-1)$ = _____

(72) $f(x) = \frac{x^3 - 3x^2}{x^2 - 1}$ has how many asymptotes? _____

(73) $\sum_{1}^{3} (-x)^x$ = _____

(74) $\sqrt{7569}$ = _____

(75) The least value of k such that ${}_8C_k = 56$ is _____

(76) If $f(x) = 2x^3 - 3x^2 + 4x$, then $f''(1)$ = _____

(77) $\int_1^3 (2x - 1)\, dx$ = _____

(78) The minimum value of $y = x^2 + 4x$ is at y = _____

(79) 234×211 = _____

*(80) 624 miles is equivalent to _____ rods

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*number) x — y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 2231

(2) $ 4.02

(3) — 246

(4) .48, $\frac{12}{25}$

(5) 22

(6) 1

(7) 8

(8) 8

(9) 43.75

*(10) 6639 — 7337

(11) 27

(12) 5

(13) 2744

(14) 156

(15) .25, $\frac{1}{4}$

(16) 106

(17) 6

(18) 155

(19) $1\frac{14}{15}$

*(20) 380 — 419

(21) $65\frac{16}{73}$

(22) 31

(23) 4176

(24) 7

(25) 66

(26) 10

(27) 410

(28) 15

(29) 8

*(30) 1847 — 2041

(31) 32

(32) 304

(33) 36

(34) 1088

(35) $3\frac{4}{7}$

(36) 1

(37) .375, $\frac{3}{8}$

(38) 5

(39) 20

*(40) 2689 — 3972

(41) 1

(42) 59

(43) 22

(44) 7.5, $\frac{15}{2}$, $7\frac{1}{2}$

(45) — 4

(46) 3.2, $\frac{16}{5}$, $3\frac{1}{5}$

(47) — 5

(48) — 55

(49) $-\frac{21}{737}$

*(50) 706 — 780

(51) 2.75, $\frac{11}{4}$, $2\frac{3}{4}$

(52) $\frac{60}{13}$, $4\frac{8}{13}$

(53) 1

(54) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(55) 9

(56) .16

(57) 0

(58) .8, $\frac{4}{5}$

(59) 5

*(60) 800 — 883

(61) 0

(62) 171

(63) 5

(64) 0

(65) — 2

(66) 550

(67) 153

(68) 21412

(69) 72

*(70) 541 — 597

(71) — 2

(72) 3

(73) — 24

(74) 87

(75) 3

(76) 6

(77) 6

(78) — 4

(79) 49374

*(80) 189,696 — 209,664

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Number Sense Test • HS Regional • 2010

Contestant's Number 9A-56

Final _____ _____
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STOP -- WAIT FOR SIGNAL!

(1) $2010 - 424 + 508 =$ _____

(2) $\frac{8}{25} \times \frac{15}{16} =$ _____

(3) $\$201.00 \div 2.5 = \$$ _____

(4) $2\frac{1}{3} + 3\frac{1}{5} =$ _____ (mixed number)

(5) $48\ \% =$ _____ (proper fraction)

(6) $2010 \div 9$ has a remainder of _____

(7) $1 - 1 \div 2 + 3 \times 5 =$ _____

(8) $31^2 =$ _____

(9) $72 \times 27 =$ _____

*(10) $11235 + 2134 - 162 =$ _____

(11) 37.5% of 320 is _____

(12) $GCD(15, 48) \times LCM(15, 48) =$ _____

(13) $8 \times 18 \times 12 =$ _____

(14) $1 + 5 + 9 + 13 + ... + 33 =$ _____

(15) 2.25 pecks is equivalent to _____ quarts

(16) The median of 85, 78, 92, 88, 90, & 76 is = ____

(17) $12.34 - 56.7 =$ _____ (decimal)

(18) $DLV + CXI =$ _____ (Arabic Number)

(19) $\{x \mid 20 < x < 40,\ x \in \{Primes\}\}$ contains how many elements? _____

*(20) $\sqrt{94835} =$ _____

(21) $0.4333... =$ _____ (proper fraction)

(22) $369 \times 101 =$ _____

(23) Round $\sqrt{5} \div \sqrt{4}$ to the tenths place. _____

(24) The sum of x and four gives the same results as twice x less eight. What is the number? _____

(25) If $f(x) = x^3 + 9x^2 + 27x + 27$ then f(9) is _____

(26) The 11^{th} hexagonal number is _____

(27) $|-1+2| - |3+4| - 5 + |-6| =$ _____

(28) The sum of the product of the roots taken two at a time of $4x^4 - 37x^2 + 9x = 0$ is _____

(29) 14253K is divisible by 6, but not by 5. K is ____

*(30) $24 \times 12 + 36 \times 72 =$ _____

(31) The multiplicative inverse of 2.0625 is _____

(32) Find k if $87^2 - 73^2 = 80k$. k = _____

(33) $222_8 - 44_8 =$ _____ 8

(34) $35 \times 4! + 3 \times 6! =$ _____

(35) $9\frac{8}{11} \times 9\frac{3}{11} =$ _____ (mixed number)

(36) $(13 \times 16 - 19) \div 11$ has a remainder of _____

(37) Given $5940 \div 44 = 135$. Find $5940 \div 5\frac{1}{2}$. _____

(38) $\sqrt{45} + \sqrt{180} = \sqrt{x}$. Find x. _____

(39) Set A has 12 elements, B has 14 elements, and $A \cap B$ has 5 elements. $A \cup B$ has _____ elements

*(40) $727272 \div 111 =$ _____

(41) The legs of a right $\triangle$ are 9 and 40. The length of the altitude to the hypotenuse is _____

(42) If P is 40% of Q and P is $\frac{3}{5}$ of R then Q is what percent greater than R? _____%

(43) If $x - y = \frac{1}{2}$ and $xy = 3$ then $x^3 - y^3 =$ _____

(44) $113 \times 211 =$ _____

(45) The greatest integer x such that $4 - 3x \geq 5$ is _____

(46) $\frac{2}{3} - \frac{101}{149} =$ _____

(47) The arithmetic mean of 0.4, 1.5, 2.6, 3.7, and 4.8 is _____(decimal)

(48) ..., x, 0.5, — 1, 2, y, ... is a geometric sequence. Find the value of $x + y$. _____

(49) 11 °C = _____ °F

*(50) $452 \times 25.4 \times \frac{2}{45} =$ _____

(51) $(144)^2 - (89)(233) =$ _____

(52) The number of distinct diagonals of a convex dodecagon is _____

(53) $\sqrt{207936} =$ _____

(54) ${}_5C_2 + {}_4P_3 =$ _____

(55) How much time has passed from 5:50 a.m. to 11:10 p.m. the same day? _____ hours

(56) $(67_9 + 78_9) \div 8$ has a remainder of _____

(57) Let $\log_{16}(x - 4) = \frac{3}{4}$. $x =$ _____

(58) $8^2 - 7^2 + 6^2 - 5^2 + 4^2 - \ldots - 1^2 =$ _____

(59) The largest number of regions created by 12 intersecting lines that are coplanar is _____

*(60) $(1.62)(2.72)(3.14)(\phi)(e)(\pi) =$ _____

(61) The slope of the line containing the points $(-1, 5)$ and $(2, -3)$ is _____

(62) $(\sin\frac{\pi}{6})(\cos\frac{\pi}{3}) - (\sin\frac{\pi}{3})(\cos\frac{\pi}{6}) =$ _____

(63) $\begin{vmatrix} 7 & 3 \\ 5 & 1 \end{vmatrix} \times \begin{vmatrix} 2 & 6 \\ 4 & 8 \end{vmatrix} = \begin{vmatrix} a & c \\ b & d \end{vmatrix}$. Find $b + c$. _____

(64) The odds of event A happening is $\frac{3}{5}$. The probability of A not happening is _____%

(65) The greatest integer function $g(x) = [3x + 1]$ has a value of _____ for $g(\sqrt{2})$

(66) 75 miles/hour = _____ feet/second

(67) $\log 27 \div \log 3 \times \log 1000 =$ _____

(68) If $[(2!) + (3!) + (5!)] \cong x \pmod 6$ and $0 \leq x \leq 5$, then x = _____

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

*(70) 4 rods 3 yards 2 feet = _____ inches

(71) $1(1!) + 2(2!) + 3(3!) + \ldots + 6(6!) =$ _____

(72) If $f(x) = x^2 - x - 2$, then $f(f(-1)) =$ _____

(73) $f(x) = \sqrt{4x - 1}$ is a real value function. The domain of f(x) is $\{x \mid x \in \{\text{Reals}\} \text{ and } x \geq$ ____$\}$

(74) $\sum_{-1}^{2} [(-x)^3 + x] =$ _____

(75) $\int_1^2 (3 - x)\,dx =$ _____

(76) The sum of the first 10 terms of the Fibonacci characteristic sequence 4,5,9,14,23,... is _____

(77) How many ways can Donald and his 3 nephews sit in a row of 5 chairs? _____

(78) $0.111\ldots + 0.1666\ldots + 0.333\ldots =$ _____

(79) Change .55 base 6, to a base ten fraction. _____

*(80) 1800 feet = _____ rods

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*number) x — y means an integer between x and y inclusive

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 2094

(2) .3, $\frac{3}{10}$

(3) $ 80.40

(4) $5\frac{8}{15}$

(5) $\frac{12}{25}$

(6) 3

(7) 15.5, $\frac{31}{2}$, $15\frac{1}{2}$

(8) 961

(9) 1944

*(10) 12547 - 13867

(11) 120

(12) 720

(13) 1728

(14) 153

(15) 18

(16) 86.5, $\frac{173}{2}$, $86\frac{1}{2}$

(17) — 44.36

(18) 666

(19) 4

*(20) 293 — 323

(21) $\frac{13}{30}$

(22) 37269

(23) 1.1

(24) 12

(25) 1728

(26) 231

(27) — 5

(28) — 9.25, $-\frac{37}{4}$, $-9\frac{1}{4}$

(29) 6

*(30) 2736 — 3024

(31) $\frac{16}{33}$

(32) 28

(33) 156

(34) 3000

(35) $90\frac{24}{121}$

(36) 2

(37) 1080

(38) 405

(39) 21

*(40) 6225 — 6879

(41) $\frac{360}{41}$, $8\frac{32}{41}$

(42) 50

(43) 4.625, $\frac{37}{8}$, $4\frac{5}{8}$

(44) 23843

(45) — 1

(46) $-\frac{5}{447}$

(47) 2.6

(48) — 4.25, $-\frac{17}{4}$, $-4\frac{1}{4}$

(49) 51.8, $\frac{259}{5}$, $51\frac{4}{5}$

*(50) 485 — 535

(51) — 1

(52) 54

(53) 456

(54) 34

(55) $\frac{52}{3}$, $17\frac{1}{3}$

(56) 4

(57) 12

(58) 36

(59) 79

*(60) 182 — 200

(61) $-\frac{8}{3}$, $-2\frac{2}{3}$

(62) — .5, $-\frac{1}{2}$

(63) 80

(64) 62.5, $\frac{125}{2}$, $62\frac{1}{2}$

(65) 5

(66) 110

(67) 9

(68) 2

(69) 1

*(70) 878 — 970

(71) 5039

(72) — 2

(73) .25, $\frac{1}{4}$

(74) — 6

(75) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(76) 660

(77) 120

(78) $\frac{11}{18}$

(79) $\frac{35}{36}$

*(80) 104 — 114