The University of Texas Interscholastic League
Number Sense Test, Series X-8

Contestant's Number..... Contestant's Score.....

Read Directions Carefully Before Beginning Test

Do Not Unfold This Sheet Until Told to Begin

Directions: Do not turn this page until the person conducting the 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 star (*) require only approximate answers; any answer to a starred problem that is within five per cent of the exact answer will be scored correct; all other problems require exact answers.

Person conducting contest should explain these directions carefully to the contestants.

Stop—Wait for Signal

(1) 1422—788= .....

(2) 676+746—787= .....

(3) 17×24= .....

(4) 16⅝×24= .....

(5) 12% of 833⅓ is .....

(6) (38×91)—(45×76)= .....

(7) 66÷4 5/7= .....

(8) 3⅜ is what per cent less than 4½? ..... %.

(9) 21¼—13⅝+9⅛—14⅞= .....

*(10) Estimate the revenue obtainable by taxing 4,167,500 cartons of cigarettes at 43.15¢ a carton. $.....

(11) 833⅓÷1⅔= .....

(12) If sausage sticks weighing ⅛ oz. each sell four for a quarter, what is the equivalent selling price per pound? $.....

(13) If 10 liters are equivalent to 2.64 gallons, then 32½ liters are equivalent to ..... gallons.

(14) 25 liters are equivalent to ..... gallons.

(15) 13⅓ gallons are equivalent to ..... liters.

(16) Find the cost of 26⅔ gallons of gasoline at 8¼¢ a liter. $.....

(17) Find the cost in dollars of 8¼ gallons of gasoline at one peso per liter, assuming that 12½ pesos are equivalent to one dollar. $.....

(18) Find the cost in pesos of 30 gallons of gasoline that sells for 28¢ a gallon. ..... pesos.

(19) Seven-millionths of seven billion is .....

*(20) If one mile is equivalent to 1.61 kilometers, estimate the cost in dollars of fuel for a trip of 579.6 kilometers in a car getting 16 miles to the gallon, assuming that fuel costs 4¼ pesos per gallon. $.....

(21) How far can you drive in 23 hours 20 minutes at 54 miles an hour? ..... miles.

(22) How long does it take to cover 536 miles at 67 miles an hour? ..... hours.

(23) How fast must you drive in order to cover 550 miles in 8 hours 20 minutes? ..... miles an hour.

(24) Find the cost of fuel at 28¢ a gallon for a trip of 11 hours 25 minutes at 55½ miles an hour in a car that gets 18½ miles to the gallon. $.....

(25) How far can you drive in 32 minutes at 22½ miles an hour? ..... miles.

(26) 1260÷23⅓= .....

(27) At what speed must you drive in order to cover 715 miles in 10 hours 50 minutes? ..... miles an hour.

(28) How long can you drive at 54 miles an hour in a car getting 13½ miles to the gallon on an expenditure of $8.58 for fuel costing 33¢ a gallon? ..... hours.

(29) How many liters of gasoline can be bought for $12.98 at 9⅝¢ a liter? ..... liters.

*(30) Estimate the area of an equilateral triangle of altitude 16 in. ..... sq. in.

(31) Write in figures: twelve and three-sixteenths billion. .....

(32) 1298 : 19⅜= .....

(33) 27 1/9—18⅓+9 5/9—7 2/9+11 7/9= .....

(34) 6⅜×8⅓= .....

(35) (6⅜×14⅜)—(3 3/10×12¾)= .....

(36) 8⅓×3 3/5×6 3/5= .....

(37) Find the tax on 8,750,000 gallons of gasoline at 8.4¢ a gallon. $.....

(38) If the tax on 8,750,000 gallons of gasoline is $700,000, find the tax on one gallon. .....¢.

(39) How many gallons of gasoline must be taxed at 6½¢ a gallon to yield $327,600 in revenue? ..... gallons.

*(40) Estimate the time required for a rocket traveling 15,500 feet a second to cover 2500 miles. ..... minutes.

(41) If 660 pegs cost $99, find the cost per thousand. $.....

(42) If pegs cost $68 a thousand, how many can be bought for $238? .....

(43) Truck B hauls 40% more than truck A; truck C hauls 68% more than truck A. What per cent more does C haul than B? ..... %.

(44) 1½ is what per cent of 6¼? ..... %.

(45) 10⅔ is what per cent less than 14 2/9? ..... %.

(46) 4⅙ is what per cent more than 3½? ..... %.

(47) Of 612 girls in a school, 356 take English, 178 take History, and 157 take neither. How many take both? .....

(48) How many take only one of the two subjects? .....

(49) How many do not take history? .....

*(50) If one mile is equivalent to 1.61 kilometers, and one square mile is equivalent to 640 acres, estimate the number of square kilometers contained in 8000 acres. ..... square kilometers.

(51) Subtract $25.65 from $42.22. $.....

(52) Subtract the sum of $18.96 and $6.77 from $42.31. $.....

(53) Subtract $24.87 from the sum of $28.51 and $12.93. $.....

(54) Subtract the sum of $18.37 and $6.56 from the sum of $12.56 and $28.98. $.....

(55) If $1750 earns $52.50 in interest in a year, how much should $8750 earn? $.....

(56) The square root of (98×450) is .....

(57) The square root of (16×64+9×64) is .....

(58) The cube root of (21×12×6×49) is .....

(59) ⅜ is to 1 as 2¼ is to .....

*(60) If a trip which is usually made in 5 hours 54 minutes is made at a speed 42% slower than usual, how long will the trip take? ..... hours.

(61) If a trip which is usually made in 21 hours is made at a speed 40% faster than usual, how long will the trip take? ..... hours.

(62) If a trip which is usually made in 21 hours is made at a speed 30% slower than usual, how long will the trip take? ..... hours.

(63) Find the sixth term of the sequence 1.35, 1.62, 1.89, 2.16, — .....

(64) A car traveling 50 miles an hour is moving how many feet a second? .....

(65) How long will it take a car traveling 52.5 miles an hour to cover 2310 feet? ..... seconds.

(66) How long will it take a car traveling 55 feet a second to cover 7½ miles? ..... minutes.

(67) How far can a car travel in 7 minutes at 45 miles an hour? ..... feet.

(68) Find the area of a trapezoid of altitude 23 in. and bases 19 in. and 27 in. ..... sq. in.

(69) Find the altitude of a trapezoid of bases 29 in. and 23 in. and area 416 sq. in. ..... in.

*(70) Estimate the altitude of an equilateral triangle of side 23 in. ..... in.

(71) A box contains 8 red balls and 8 white balls. Three balls are taken at random from the box. Find the probability that one is red and two are white. .....

(72) What is the probability that all three are white? .....

(73) What is the probability that at least one of the three balls is red? .....

(74) Two cards are taken at random from an ordinary deck of 52 playing cards. Find the probability that the two cards belong to the same suit. .....

(75) The sides of a triangle are 27 in., 36., and 45 in. Find the area ..... sq. in.

(76) The area of a square is decreased from 132¼ sq. in. to 72¼ sq. in. Find the corresponding decrease in the perimeter. ..... in.

(77) An increase of 33⅓% in speed is accompanied by a decrease of ..... % in time.

(78) A decrease of 40% in speed is accompanied by an increase of ..... % in time.

(79) A decrease of 36% in time is accompanied by an increase of ..... % in speed.

*(80) The diagonal of a square is increased from 23½ in. to 31¼ in. Estimate the corresponding increase in the side. ..... in.

HS Number Sense Series X-8 Test Answer Key

(1) 634	**(21) 1260**	**(41) 150.00**	**(61) 15**
(2) 635	**(22) 8**	**(42) 3500**	**(62) 30**
(3) 408	**(23) 66**	**(43) 20**	**(63) 2.7**
(4) 399	**(24) 9.59**	**(44) 24**	**(64) $73\frac{1}{3}$**
(5) 100	**(25) 12**	**(45) 25**	**(65) 30**
(6) 38	**(26) 25**	**(46) 20**	**(66) 12**
(7) 14	**(27) 66**	**(47) 79**	**(67) 27720**
(8) 1.875	**(28) 6.5**	**(48) 376**	**(68) 529**
(9) 3.5	**(29) 132**	**(49) 434**	**(69) 16**
***(10) 1708362.44-1888190.06**	***(30) 140.42-155.19**	***(50) 30.79-34.02**	***(70) 18.93-20.91**
(11) 500	**(31) 12187500000**	**(51) 16.57**	**(71) $\frac{2}{5}$**
(12) 1.25	**(32) 66**	**(52) 16.58**	**(72) $\frac{1}{10}$**
(13) 8.58	**(33) $22\frac{8}{9}$**	**(53) 16.57**	**(73) $\frac{9}{10}$**
(14) 6.6	**(34) 55**	**(54) 16.61**	**(74) $\frac{4}{17}$**
(15) 50	**(35) 51**	**(55) 262.50**	**(75) 486**
(16) 8.25	**(36) 198**	**(56) 210**	**(76) 12**
(17) 2.50	**(37) 735000.00**	**(57) 40**	**(77) 25**
(18) 105	**(38) 8**	**(58) 42**	**(78) $66\frac{2}{3}$**
(19) 49000	**(39) 5040000**	**(59) 6**	**(79) $56\frac{1}{4}$**
***(20) 7.27-8.03**	***(40) 48541.94-53651.61**	***(60) 9.67-10.68**	***(80) 5.21-5.75**