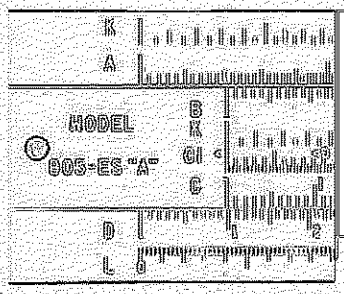
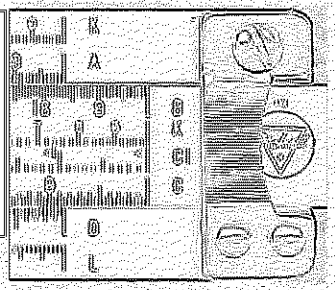
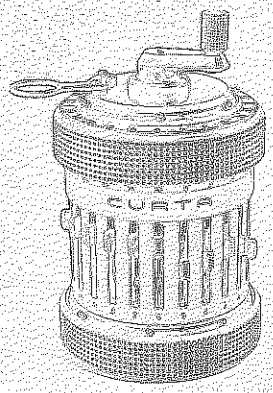
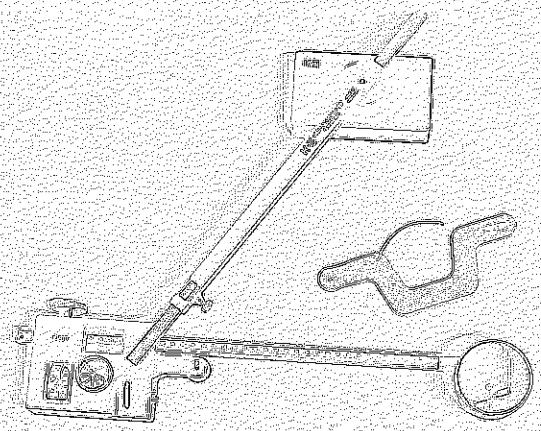


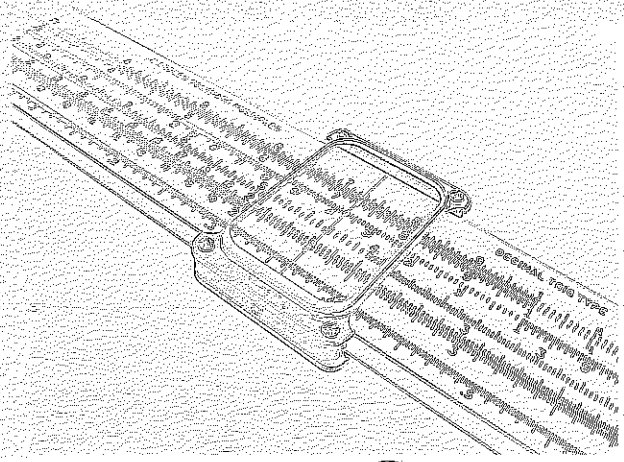
Texas Competitive Mathematics
Web - http://www.texasmath.org
Fax - (206) 666-MATH/(206) 666-6284
E-Mail - webmaster@texasmath.org

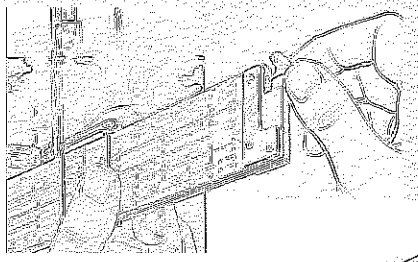


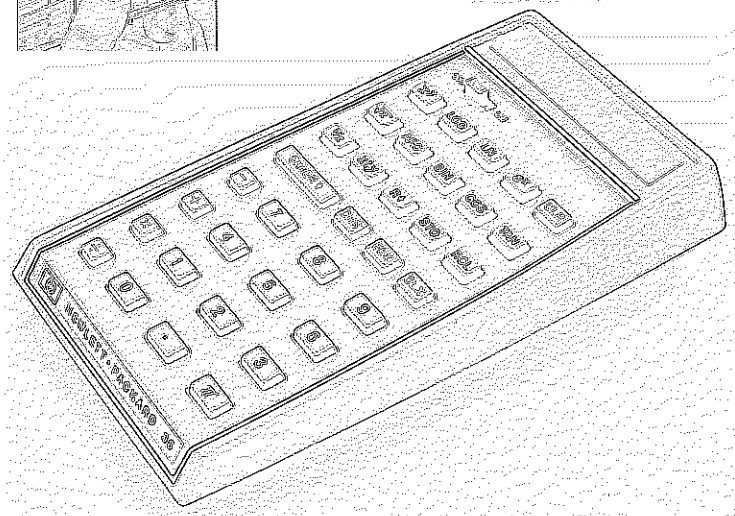
1965-66 UIL Number Sense
(18 pages)

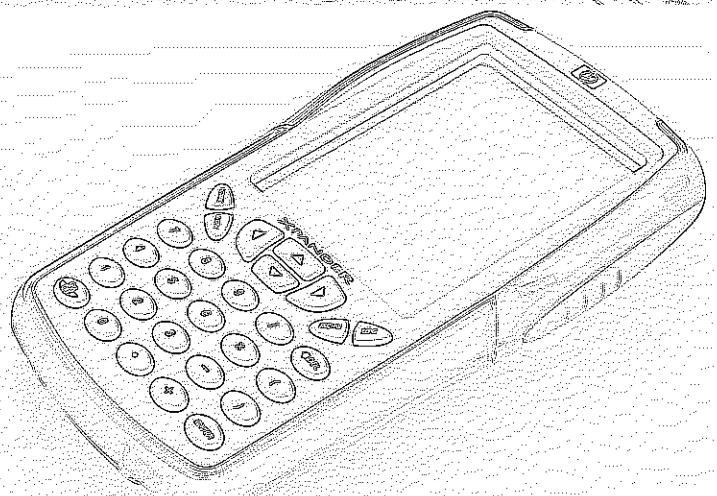


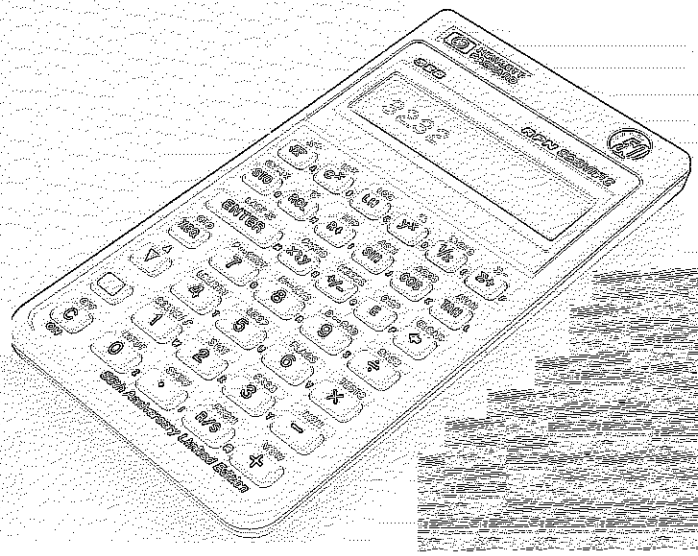


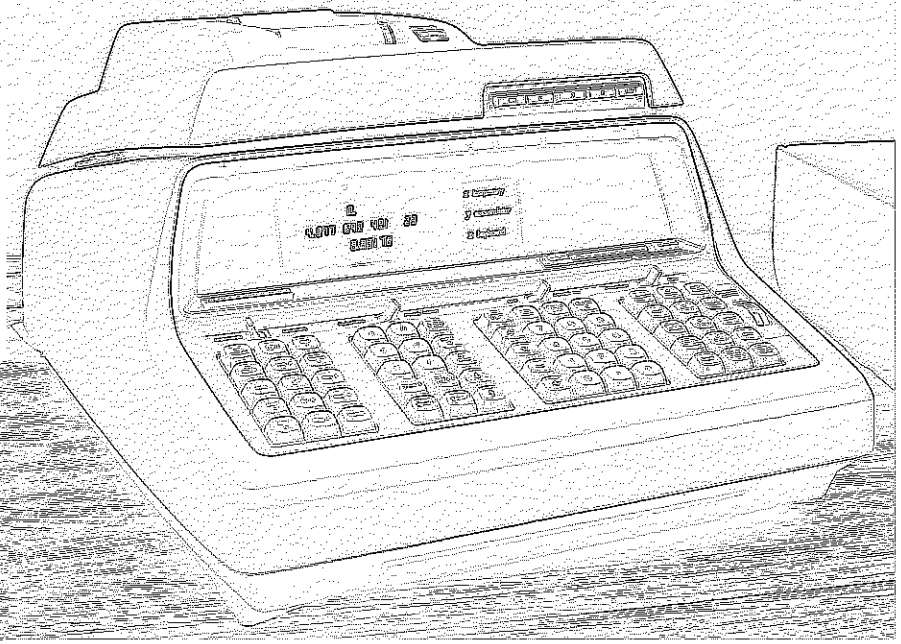












The University of Texas Interscholastic League

Number Sense Test, Series Y-1

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) 21+39—28= .....

(2) 14×16= .....

(3) 180÷15= .....

(4) 57 is what percent of 152 .....%.

(5) 2½×3⅓= .....

(6) 5/8—5/12= .....

(7) 8.34+12.62= .....

(8) 16×7/24= .....

(9) 31×11= .....

*(10) Estimate 168×52. .....

(11) 22 bushels= .....pks.

(12) 196= .....doz.

(13) 22 dozen eggs= .....eggs.

(14) 172 inches= .....ft.

(15) 38/40= .....%.

(16) 42=87½% of .....

(17) 30% of 192= .....

(18) 4/14= .....%.

(19) 5% of 179= .....

*(20) Estimate the product of the first six positive even integers. .....

.....

(21) 21/56= .....%.

(22) 35=87½% of .....

(23) 11% of 872= .....

(24) Find the simple interest on $1600 for one year at 1¾%.

$.....

(25) If the simple interest on $30,000 for one year is $1800, what is the rate? .....%.

(26) How much should be invested for three years at 4% simple interest in order to yield $2400. $.....

(27) Find the simple interest on $6000 for one year at 5½%.

$.....

(28) Find the tax on 16,000 gallons of gasoline at 8½¢ per gallon.

$.....

(29) Find the income tax on a net income of $3000 at the rate of 17.5%, 19%, and 22% for the first, second, and third thousand dollars, respectively. $.....

*(30) Estimate 17,936÷472. .....

(31) 133⅓×186= .....

(32) 28×32= .....

(33) 90 5/7÷5= .....

(34) ⅔×96⅔= .....

(35) Find the area of a triangle whose sides are 5 in., 12 in., and 13 in. respectively .....sq. in.

(36) Find the area of a rectangle whose length is thrice its width and whose perimeter is 80 yds. .....sq. yd.

(37) How many degrees are in the exterior angle of a regular pentagon? .....degrees.

(38) Two chords A and B of a circle intersect so that the segments of A are 5 inches and 12 inches and the short segment of B is 7½ inches. Find the length of the other segment of B. .....in.

(39) If a triangle is enlarged to a similar triangle so that the radius of the inscribed circle is doubled, then the area is multiplied by

.....

*(40) Estimate what percent larger 1829 is than 1621. .....%.

(41) Find the sum of the positive integral divisors of 12. .....

(42) Find the number of positive integral divisors of 12. .....

(43) How many positive integers less than 12 are relatively prime to 12?

.....

(44) Find the next term of the sequence 1, 4, 9, 16, 25 .....

(45) If 7 plus twice a number equals the number less 7, the number is

.....

(46) Find the sum of two numbers each of which satisfies $x^2-3x+2=0$

.....

(47) Find the larger of two numbers x and y such that $3x+y=3$ and $2x-y=2$. .....

(48) Find x if $2^x 3^x = 36$ .....

(49) If a boy made $1 on Monday and doubled his previous day's earnings each day, what were his total earnings by Saturday night? $.....

*(50) Estimate the state tax on 317,512 gallons of gasoline at 8½¢ per gallon. $.....

(51) If there are one, two, and three beads of colors, red, white, and blue respectively, what is the smallest number of draws before a blind man may be sure that he has beads of three colors? .....

(52) Find the largest prime divisor of 145. .....

(53) 3½ is to 14 as what is to 42? .....

(54) Find the greatest common divisor of 46 and 69. .....

(55) Counting the null set and the whole set, how many subsets are in $\{1, 2, 3, 4, 5\}$? .....

(56) How many primes are less than or equal to 41? .....

(57) If a car traveled 553½ miles in 9 hours, what was the average rate? .....mph.

(58) Change 55 dollars to pesos at 12½ to the dollar. .....
..... pesos.

(59) Find the product of the least common multiple and greatest common divisor of 88 and 130. .....

*(60) Estimate the circumference of a circle whose diameter is 217 ft.
..... ft.

(61) Find the difference in cost of 12 gallons of gasoline at 29.5¢ and 20 at 21.5¢. $.....

(62) If $x=9$, find x^3+3x^2 .....

(63) After a 12½% increase in salary Jones made $900. What was his previous income? $.....

(64) Find Jud's average yardage for the game if his yardages were 2, 3, —6, 10, 3, 2, 4, 5, 6, 8, —4, —1. .....yds.

(65) Compute the sales tax on a car worth $2800 if the rate is 2¼%.
$.....

(66) A man borrowed $740 and paid back $784.40 one year later. What was the simple interest rate? .....%.

(67) If a car uses 13 gallons of gasoline in 234 miles, how much would it use, at the same rate in 270 miles? .....gal.

(68) If a stove sells for $390 at a profit of 30% of the cost, what is the cost? $.....

(69) In two hours and 4 minutes, the minute hand of a clock turns through .....degrees.

*(70) Estimate the number of gallons in a conical tank of 15,360 gallon capacity, with the big part up when it is filled to ⅝ its depth.
..... gal.

(71) $8\frac{1}{2} \times 5\frac{1}{3} =$ .....

(72) $525 \times 85 =$ .....

(73) $1736 \div 28 =$ .....

(74) $42 \div 1\frac{1}{6} =$ .....

(75) If A is 20% less than B and B is 20% less than C, then A is what percent less than C? .....%.

(76) $13\frac{1}{2} \times 15 =$ .....

(77) If one mile equals 1609 meters, how many miles are in 6436 meters? .....miles.

(78) If 62½% of 24% of a number is 135, find it. .....

(79) $841-268-473+137 =$ .....

*(80) Estimate 85% of $3724. $.....

The University of Texas Interscholastic League

Number Sense Test, Series Y-2

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) 51—28+15=.....

(2) 39×22=.....

(3) 2½×56=.....

(4) 35÷2½=.....

(5) 1½+2⅓—2½=.....

(6) 5/12+5/6—1=.....

(7) 45 5/11% of 2222=.....

(8) 51×62=.....

(9) 14½×12=.....

*(10) Estimate the cost of 327 acres of land at $225 per acre.
$.....

(11) 3960 yds.=.....miles.

(12) 3456 cu. in=.....cu. ft.

(13) 198 sq. ft.=.....sq. yd.

(14) 50 pk.=.....bu.

(15) 2/11=.....%.

(16) 26=65% of.....

(17) 16⅔% of 196=.....

(18) 10/12=.....%.

(19) 22=55% of.....

*(20) Find the area of a trapezoid whose bases are 102 ft. and 90 ft. and whose altitude is 57 ft. .....sq. ft.

(21) 22 2/9% of 99=.....

(22) 42/56=.....%.

(23) 45=55 5/9% of.....

(24) Find the simple interest for one year on $8,000,000 @ 2¾%.
$.....

(25) If the simple interest on $60,000 for one year is $3600, find the rate of interest. .....%.

(26) The simple interest on a sum of money at 4% in five years was $4000. Find the sum. $.....

(27) Find the simple interest on $1500 at 5½% for 1 year. $.....

(28) Find the tax on 8800 gallons of gasoline at 9½¢ per gallon.
$.....

(29) Find the income tax on a net income of $3000 at 16% on the first thousand, 17% on the next, and 20% on the third. $.....

*(30) Estimate the sum of the first six primes. .....

(31) 175×180=.....

(32) 102 6/7÷6=.....

(33) 5/6×96 6/7=.....

(34) Find the area of a triangle whose sides are 9 in., 12 in., and 15 in.
.....sq. in.

(35) Find the length of a rectangle if the length is thrice the width and the area is 75 sq. ft. .....ft.

(36) How many degrees are in each interior angle of a regular pentagon? .....degrees.

(37) The diameter of a circle is 20 in. long and divides a chord in the ratio 3 to 2. If the short segment of the diameter is 12 in. long how long is the other segment? .....in.

(38) If the radius of a sphere is tripled, the volume is multiplied by
.....

(39) Find the sum of the positive integral divisors of 14. .....

*(40) If a man borrowed $1775 and repaid $1875.96 one year later, estimate his rate of simple interest. .....%.

(41) Find the number of positive integral divisors of 14. .....

(42) Find the next term of the sequence 1, 8, 27, 64, 125 . . . .

(43) If 7 plus twice a number equals the number plus seven, the number is .....

(44) Find the product of two numbers which satisfy the equation $x^2-6x+6=0$. .....

(45) Find x if $3^x4^x=144$ .....

(46) If a boy made $1 on Monday and each day tripled his previous day's salary, how much had he made by Wednesday night? $.....

(47) If there are two, three, and five red, white and blue beads respectively in a box, how many draws must a blind man make before he is assured of having a red bead? .....

(48) How many positive integers less than or equal 12 are relatively prime to 12? .....

(49) If Tom is five times as old as Joe, but will be only twice as old as Joe 15 years from now, how old is Tom now? .....years.

*(50) Estimate the volume of a right circular cylinder of altitude 45 ft. and diameter of base 30 ft. .....cu. ft.

(51) If it takes 4 men 3 days to do a job, how long will it take 3 men? ..... days.

(52) Find the largest prime divisor of 174. .....

(53) $3\frac{1}{2}$ is to $5\frac{1}{2}$ as what is to $16\frac{1}{2}$? .....

(54) Find the greatest common divisor of 87 and 58. .....

(55) Counting the null set and the entire set how many subsets are in the set $\{1, 2, 3, 4, 5, 6\}$? .....

(56) How many primes are less than or equal to 43? .....

(57) If a car traveled 504 miles in 9 hours, what was the average rate of speed? .....mph.

(58) Convert 45 dollars to pesos at $12\frac{1}{2}$ pesos to the dollar. ..... pesos.

(59) Find the product of the least common multiple and greatest common divisor of 64 and 30. .....

*(60) A home sold for $21,000. The expenses of the sale were: 6% agent's fee; $10 for bringing the abstract to date; $157 current taxes; $150 zoning costs and $1.00 for tax receipts. Estimate the owner's net. $.....

(61) Find the difference in cost of 10 gallons at 27.9¢ and 14 gallons at 21.5.¢ $.....

(62) If $x=8$, find $2x^3+5x$ .....

(63) After getting a $16\frac{2}{3}\%$ salary increase, Jones made $840. What was his salary before the raise? $.....

(64) If Harrison's yardages during the game were —1, 12, —3, 6, 2, 0, 5, —4, 0, 2, 2, 6, find his average. .....yards.

(65) Find the cost of 15 gallons of gasoline at 33¢ per gallon. $.....

(66) If a man receives a 15% salary cut and now receives $765, how much did he receive before the cut? $.....

(67) $161 \div 2\frac{1}{3} =$ .....

(68) $(69 \times 2\frac{2}{3}) - (69 \times 1\frac{1}{3}) =$ .....

(69) Find the smallest number greater than 5 that divides 195. .....

*(70) Estimate the cube root of 5350. .....

(71) A speed of 3520 yards a minute is equivalent to how many ft. per second? .....ft. per sec.

(72) The perimeter of a square is increased from 14 in. to 18 in. Find the increase in area. .....sq. in.

(73) $(53 \times 53) - (52)\ (52) =$ .....

(74) A man borrowed $1735 and a year later repaid $1821.75. What was his simple interest rate? .....%.

(75) If the area of a square is decreased from 1024 sq. in. to 841 sq. in. find the corresponding decrease in perimeter. .....in.

(76) $280 \div 17\frac{1}{2} =$ .....

(77) If 16,500 bricks cost $1485, find the cost of 1000 bricks. $.....

(78) If the legs of a right triangle are 27 inches and 36 inches, find the hypotenuse. .....in.

(79) $77^2 - 76^2 + 76^2 - 74^2 =$ .....

*(80) Estimate the dollar value of 890 pesos at $12\frac{1}{2}$ pesos to the dollar. $.....

The University of Texas Interscholastic League

Number Sense Test, Series Y-3

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) 78+38= .....

(2) 56—22= .....

(3) 3¾×60= .....

(4) 39×1½= .....

(5) 18×12= .....

(6) 6(156—144)= .....

(7) 96×84= .....

(8) What percent of 45 is 135? .....%.

(9) 2⅔×3¼= .....

*(10) At $132 per thousand board feet estimate the cost of 13,158 board feet. $.....

(11) 97 pt.= .....gallons.

(12) 16½ pecks= .....qts.

(13) 160 acres= .....sq. mi.

(14) 18 doz. eggs= .....eggs.

(15) 70% of 1622= .....

(16) 153/204= .....%.

(17) 123=66⅔% of .....

(18) 35% of 160= .....

(19) 17½÷70= .....%.

*(20) 17,291÷263= (estimate) .....

(21) 13½=25% of .....

(22) 40% of 47= .....

(23) 5/11= .....%.

(24) Find the simple interest on $1624 for 1 year at 3.75%. $.....

(25) If the simple interest on $17,000 for 2 years is $374, what is the rate? .....%.

(26) Find the simple interest for 2 years on $1648 at 6.25%. $.....

(27) If the simple interest on a sum for 3 years at 5% is $285, find the sum. $.....

(28) Find the simple interest on $14,000 for 5 years at 4½%. $.....

(29) Find the tax on a $3000 net income at 15%, 17% and 19% on the first, second, and third thousand dollars respectively. $.....

*(30) Estimate the product of the first five primes. .....

(31) 162½×240= .....

(32) 57×63= .....

(33) 64×21⅓= .....

(34) ⅝×88 8/9= .....

(35) Find the area of a rhombus with diagonals 16 in. and 18 in. ..... sq. in.

(36) Find the area of a triangle with sides 7 in., 24 in., and 25 in. ..... sq. in.

(37) How many degrees are in each exterior angle of a regular decagon? ..... degrees.

(38) Find the area of a sector of a circle with central angle of 72° if the circle has a radius of $\frac{5}{\sqrt{\pi}}$ in. .....

(39) When a regular nonagon has its side multiplied by three, the area is multiplied by .....

*(40) At .62 miles per kilometer, estimate my speed in miles per hour if I am traveling 92½ kilometers per hour. .....mph.

(41) Find the sum of the positive integral divisors of 15. .....

(42) Find the number of positive integral divisors of 15. .....

(43) How many positive integers less than or equal to 15 are relatively prime to 15? .....

(44) Write the next term: 2, 5, 10, 17, 26, ...

(45) If three times a number is 8 minus the number, find the number. .....

(46) Find the product of the two distinct numbers each of which when squared is 25. .....

(47) Find the value of the larger of x and y if $3x+y=5$ and $2x-y=10$. .....

(48) Find x if $2^{2x}=16$. .....

(49) If a boy made \$1 on Monday and tripled his previous days earnings each day till Thursday, how much had he earned by Thursday night? \$.....

*(50) If I pay \$75.04 sales tax on \$12,506 estimate my rate. .....%.

(51) If Tom is now four times as old as Joe but will be only 7/4 times as old in 15 years, how old is Tom now? .....years.

(52) If it takes 5 men two days to do a job, how many days will it take 11 men to do it? .....

(53) If a box contains 2 red beads, 3 white ones, and 5 blue ones, how many draws must a blind man make before being certain that he has beads of three colors? .....

(54) Find the largest prime divisor of 370. .....

(55) $3\frac{1}{2}$ is to $5\frac{1}{2}$ as what is to 22? .....

(56) Find the least common multiple of 34 and 51. .....

(57) Counting the null set and the entire set how many subsets are in the set $\{1, 2, 3, 4, 5, 6, 7\}$? .....

(58) How many primes are less than or equal to 19? .....

(59) If a plane traveled 9515 miles in 11 hours, the average rate was ..... mph.

*(60) Estimate $8621+3562+2782+4261$ .....

(61) Convert \$36 to pesos at $12\frac{1}{2}$ pesos to the dollar. .....pesos.

(62) Find the product of the least common multiple and greatest common divisor of 25 and 35. .....

(63) If $x=7$, find x^3+2x+5. .....

(64) If after a $6\frac{1}{4}\%$ raise a man's salary was \$340, how much did he make before his raise? .....

(65) If Jarring Jud made 5, —4, —1, 0, 4, 3, 2, 6, 4, and 7 yards during a football game, what was his average? .....yards.

(66) If the tax on a \$2000 car is \$22 the rate is .....%.

(67) If a farmer increases his acreage 8% and now plants 162 acres, how much did he plant before the increase? .....acres.

(68) $190\div1\frac{2}{3}=$ .....

(69) $(56\times1\frac{1}{3})+(56\times2\frac{2}{3})=$ .....

*(70) Estimate the area of a circle whose diameter is 31.6 ft. ..... sq. ft.

(71) How many integers between 12 and 200 are divisible by 13? .....

(72) Find the smallest integer greater than 5 that divides 165. .....

(73) If the perimeter of a square is increased from 160 in. to 200 in., how much is the area increased? .....sq. in.

(74) $10{,}800\div240=$ .....

(75) A speed of 240 miles per hour is equivalent to one of how many feet per second? .....ft. per sec.

(76) $7^3+3^3=$ .....

(77) If 6500 pegs cost \$11.05 what is the cost per thousand? \$.....

(78) If the legs of a right triangle are $2\frac{1}{2}$ in. and 6 in. find the hypotenuse. .....in.

(79) $8^4-7^4=$ .....

*(80) After a $6\frac{1}{4}\%$ raise, Brown now earns \$634. Estimate his previous salary. \$.....

The University of Texas Interscholastic League

Number Sense Test, Series Y-4

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) $79+39=$ .....

(2) $156-159=$ .....

(3) $2\frac{3}{4}+2\frac{5}{8}=$ .....

(4) $22\times18=$ .....

(5) $50\div12\frac{1}{2}=$ .....

(6) $25+33+49=$ .....

(7) $196\div28=$ .....

(8) $3/4\times52/7=$ .....

(9) 28 4/7% of 77= .....

*(10) Estimate $1824\times27=$ .....

(11) 22 ft.= ..... inches.

(12) 4 mi.= ..... yds.

(13) 7 cu. ft.= ..... cu. in.

(14) 15 sq. yd.= ..... sq. ft.

(15) 5% of 60= .....

(16) 2/9= .....%.

(17) 63=45% of .....

(18) $2\frac{1}{2}$% of 64= .....

(19) 5/9= .....%.

*(20) Estimate after deducting the cost of the house the average cost per acre if a $3500 house and 165 acres cost a total of $21,750.

$.....

(21) 170=85% of .....

(22) $33\frac{1}{3}$% of 192= .....

(23) 7/12= .....%.

(24) Find the simple interest for one year on $7200 at $4\frac{3}{4}$%.

$.....

(25) If the simple interest for one year on $21,600 is $1080, find the rate. .....%.

(26) How much money should be invested at 6% simple interest for two years in order to earn $1464? $.....

(27) Find the simple interest on $2500 at $5\frac{1}{2}$% for 1 yr. $ .....

(28) Find the tax on 3200 gallons of gasoline at $9\frac{1}{2}$¢ per gallon.

$.....

(29) Find the income tax on a net income of $3000 if the tax rate is 16% of the first $1000, $17\frac{1}{2}$% of the second, and 19% of the third.

$.....

*(30) At 186,000 miles per second, estimate the length of time it will take a radio wave to travel 16,000,000 miles. ..... sec.

(31) $125\times160=$ .....

(32) $88\times92=$ .....

(33) $8\times27\frac{1}{2}=$ .....

(34) 3/8×56 8/11= .....

(35) Find the area of a triangle with sides 20 inches, 21 inches, and 29 inches. ..... sq. in.

(36) Find the side of a rhombus with a 60° interior angle and an area of $18\sqrt{3}$ sq. in. ..... in.

(37) How many degrees are in the interior angle of a regular decagon?

..... degrees.

(38) The central angle of a sector of a circle with a diameter of $\frac{6}{\sqrt{\pi}}$ in. is 60°. The sector's area is ..... sq. in.

(39) If the edge of a regular octahedron is magnified fourfold, the volume is multiplied by .....

*(40) Estimate the volume of a sphere whose radius is 11 inches.

..... cu. in.

(41) Find the sum of the positive integral divisors of 16. .....

(42) Find the number of positive integral divisors of 16. .....

(43) How many positive integers less than 16 are relatively prime to 16?

.....

(44) Find the next term of 2, 9, 28, 65, 126, ...

(45) If three times a number is 8 more than the number, the number is

.....

(46) Find the sum of the integers which satisfy the equation $x^2+x-20=0$. .....

(47) Find the larger of x and y if $2x+3y=4$ and $2x-3y=0$. .....

(48) Find x if $2^{3x}=64$ .....

(49) A boy made $1 on July 1 and doubled his previous day's wages on each succeeding day for 8 days. What was his daily earning on the day of July 8? $.....

*(50) Estimate 1818+1855+1899+1933+1977= .....

(51) Three married couples are playing bridge with a group. How many ways may the men of these three couples be paired with the women of these three couples without any pair being married? .....

(52) Find the largest prime divisor of 222. .....

(53) 10 is to 18 as what is to 4½? .....

(54) Find the greatest common divisor of 76 and 114. .....

(55) The ordered pairs (a,b) and (c,d) are equal if and only if a=c and b=d. Allowing the same number to appear twice in the same ordered pair, how many unequal ordered pairs can be formed from the set {1,2}? .....

(56) How many primes are less than 13? .....

(57) If a car traveled 594 miles in 11 hours, what was the average rate? .....mph.

(58) Convert $16 to pesos at 12½ pesos to the dollar. .....pesos.

(59) Find the product of the least common multiple and the greatest common divisor of 40 and 45. .....

*(60) If an equilateral triangle has an area of 144 sq. in. and each side is magnified 1.2 times, what is the new area? .....sq. in.

(61) Find the difference in the cost of 10 gallons of gasoline at 28.9¢ and 12 gallons at 20.5¢. $.....

(62) If x=25, find x^2-2x+4 .....

(63) After a man got 8⅓% raise he made $650. What did he make previously? $.....

(64) If Terrible Tim made —2, 5, 1, 0, 6, 0, 2, 3, 5, 8, 5, and 0 yards during a football game, what was his average? .....yd.

(65) Find the perimeter of a quadrilateral with sides 46.3 in., 55 in., 84 in., and 53.7 in. .....in.

(66) Find the largest integer less than 200 which divides 539. .....

(67) Find the area of a right triangle if a leg is 3½ inches and the hypotenuse is 12½ in. .....sq. in.

(68) $16\frac{1}{2}\times 2\frac{2}{3}=$ .....

(69) The perimeter of a square is decreased from 63 in. to 55 in. Find the decrease in area. .....sq. in.

*(70) Estimate $(\pi)^2$ as a decimal. .....

(71) $21^3-20^3=$ .....

(72) $18\frac{5}{8}-9\frac{1}{4}+29\frac{7}{8}-37\frac{3}{4}=$ .....

(73) 8800 ft. per second= .....mph.

(74) 26 is what percent of 65? .....%.

(75) $\sqrt{30\frac{1}{4}}=$ .....

(76) Find the 6th term of 27, 23½, 20, 16½ .....

(77) Find the tax rate on a new car costing $4300.00 if the tax is $172. .....%.

(78) How fast must you average to cover 20 miles in 25 minutes? ..... mph.

(79) $8^3-5^3=$ .....

*(80) Estimate the sum of the first seven primes. .....

The University of Texas Interscholastic League
Number Sense Test, Series Y-5

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) $91 \div 13 =$ .....

(2) $89 - 44 =$ .....

(3) $313 - 166 + 55 =$ .....

(4) $88 \times 2\frac{7}{8} =$ .....

(5) $2\frac{1}{4} + 3\frac{1}{8} + 2\frac{5}{8} =$ .....

(6) $150 \times 45 =$ .....

(7) $\frac{1}{8} \times 25\frac{5}{8} =$ .....

(8) $87 + 78 =$ .....

(9) $16\frac{1}{2} \div \frac{1}{2} =$ .....

*(10) Estimate $2972 + 3146 + 2896 + 3124 =$ .....

(11) 82 bu. = ... pk.

(12) 26 gal. = ... pt.

(13) 46 qt. = ... pk.

(14) 12 sq. mi. = ... acres.

(15) 36 = 75% of .....

(16) 26% of 50 = ...

(17) 13/4 = ... %.

(18) 90 = 55 5/9% of .....

(19) 70% of 811 = ...

*(20) Estimate $16{,}509 \div 64$ .....

(21) 75/200 = ... %.

(22) 246 = 66⅔% of .....

(23) 35% of 320 = ...

(24) Find the simple interest on $10,800 at 2¾% for 1 year.

$.....

(25) If $18,000 yields $990 simple interest in 1 year, find the rate of interest. ..... %.

(26) Find the principal which invested at 6% simple interest for 4 years yields $312. $.....

(27) What is the simple interest on $28,000 for 1 year at 6½%.

$.....

(28) Find the tax on a taxable income of $3000 at 16% on the first thousand, 18½% on the next and 19% on the third thousand.

$.....

(29) Find the tax on 3216 gallons of gasoline at 9½¢ per gallon.

$.....

*(30) If 1.61 kilometers = 1 mile, estimate my speed in kilometers per hour when I am traveling 59 mph. ..... kilo. per hr.

(31) $125 \times 160 =$ .....

(32) $88 \times 92 =$ .....

(33) $82 \times 68 =$ .....

(34) 3/8 × 56 8/11 = ...

(35) Find the side of an equilateral triangle whose area is 9/4 $\sqrt{3}$ sq. in. ..... in.

(36) Find the area of a parallelogram with base 19 in. and altitude 38 in. ..... sq. in.

(37) How many degrees are in the exterior angle of a regular hexagon? ..... degrees.

(38) If a right triangle has sides 3 in., 4 in., and 5 in., what is the length of the projection of the short leg on the hypotenuse? ..... in.

(39) A line parallel to the base of a triangle bisects one side. The triangle cut off has an area of what part of the whole triangle?

.....

*(40) Estimate my investment at 4½% simple interest if my income is $131.65 per year. $ .....

(41) Find the sum of the positive integral divisors of 18. .....

(42) Find the number of positive integral divisors of 18. .....

(43) Find the number of positive integers less than 18 and relative prime to 18. .....

(44) Find the next term of: $\frac{1}{1}, \frac{1}{1}, \frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{8}, \frac{1}{13}, \ldots$ .....

(45) If thrice a number plus 1 equals twice the number plus 4, the number is .....

(46) Find the product of the two solutions of $x^2-7x+6=0$. .....

.....

(47) Find the larger of two numbers x and y if $3x+4y=2$ and $3x-4y=0$. .....

(48) Find x if $3^{2x}=81$ .....

(49) If a boy worked six days making \$1 and \$2 respectively the first and second days and making the product of his salaries on the two preceding days each day thereafter, how much did he make on the sixth day? \$.....

*(50) Estimate my total cost in dollars and cents at 12½ pesos to the dollar of articles costing 6¼, 175 and 187½ pesos. \$.....

(51) If January 1, 1965 came on Friday, how many Fridays were in 1965? .....

(52) Find the largest prime divisor of 215. .....

(53) ½ is to 4½ as what is to 3? .....

(54) Find the least common multiple of 46 and 69. .....

(55) Two ordered pairs (a,b) and (c,d) are equal if and only if $a=c$ and $b=d$. Allowing the same number to appear twice in an ordered pair, how many unequal ordered pairs can be made from $\{1,2,3\}$? .....

(56) How many primes are less than or equal to 21? .....

(57) If I traveled 1287 miles in 21 hours, what is my average speed? ..... mph.

(58) Change 18¾ pesos to dollars and cents at 12½ pesos to the dollar. \$.....

(59) Find the product of the least common multiple and greatest common divisor of 50 and 65. .....

*(60) Estimate the volume of a right circular cylinder with 11 in. as diameter of its base and 28 in. as altitude. .....cu. in.

(61) Find the difference in the cost of 5 gallons of gasoline at 30.9¢ and 7 gallons at 20.5¢. \$.....

(62) If $x=24$, find $x^2+13=$ .....

(63) After a 25% raise Poor Tom made \$560. What did he make before the raise? \$.....

(64) If Lanky Tom made yardages of 1, —2, 4, 0, 5, 2, 3, 5, —1, 8, —5, and 16 during the game, find his average. .....yds.

(65) How fast must one go in order to go 30 miles in 25 minutes? ..... mph.

(66) Find the tax on 220 million gallons of gasoline at 5½¢ per gallon. \$.....

(67) If after a 5% increase in salary Marching Mose makes \$630, how much did he earn previously? \$.....

(68) If 4/7 oz. smoked herring sells for 8¢, what is the price per pound at the same rate? \$.....

(69) $64^2-56^2=$ .....

*(70) If it takes 62 men 14 days to do a job, estimate how many days it takes 4 men to do it. .....days.

(71) $(3\frac{1}{2}\times 96)-(7\times 48)=$ .....

(72) Find the hypotenuse of a right triangle whose legs are 3½ inches and 12 inches. .....inches.

(73) If the perimeter of a square is increased from 18 in. to 34 in. what is the increase in area? .....sq. in.

(74) Find the least prime divisor of 221. .....

(75) $735\div 1\ 1/20=$ .....

(76) $12^3-11^3=$ .....

(77) If 6250 pegs cost \$25.00 find the cost per 1000 pegs. \$.....

(78) Find the tax on 19 million gallons of gasoline at 11¢ per gallon. \$.....

(79) $1\frac{1}{2}\times 54\frac{1}{2}=$ .....

*(80) Estimate the product of the first five even positive integers.

.....

The University of Texas Interscholastic League
Number Sense Test, Series Y-6

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) $28+96=$ .....

(2) 16 (26—10) = ...

(3) $12\times15=$ .....

(4) 1500 is what percent of 1800? .....%.

(5) $64\div8/9=$ .....

(6) $16\times7/24=$ .....

(7) 196—18—26= .....

(8) $17\times22=$ .....

(9) $2\frac{1}{2}+3\frac{1}{3}-1\frac{1}{3}=$ .....

*(10) Estimate as a decimal the number of sq. miles in 11,840 acres at 640 acres to the sq. mile. .....sq. miles.

(11) 2 sq. miles= .....A.

(12) 202= .....dozen.

(13) 23 dozen eggs= .....eggs.

(14) 122 in. = ...ft.

(15) $8\frac{1}{2}\div25\frac{1}{2}=$ .....%.

(16) 26=25% of .....

(17) 20% of 47= .....

(18) 7/11= .....%.

(19) $6\frac{1}{4}$% of 85= .....

*(20) Estimate 1628+2527+1650—1624+1527= .....

(21) 18/24= .....%.

(22) 160=62½% of .....

(23) Find the simple interest on $10,800 at $2\frac{3}{4}$% for 1 year.

$.....

(24) At what rate of simple interest does $18,000 yield $990 in one year? .....%.

(25) What principal will yield $312 simple interest in 4 years at 4%?

$.....

(26) Find the simple interest on $28,000 at 7% for 2 years.

$.....

(27) Find the tax on 16,500 gallons of gasoline at 9¢ per gallon.

$.....

(28) Find the tax on a taxable income of $3000 at 16% on the first thousand, 18½% on the second, and 20% on the third.

$.....

(29) Find 75×65. .....

*(30) Estimate Tom's average, as a percent if his test grades are 72%, 96%, and 80% and his final is 86% if the final counts 40% and the three tests count 60% .....%.

(31) $125\times104=$ .....

(32) $68\ 8/9\div4=$ .....

(33) $\frac{2}{3}\times156\frac{2}{3}=$ .....

(34) Find the side of an equilateral triangle whose area is $100\sqrt{3}$ sq. ft. .....ft.

(35) Find the other side of a rectangle with an area of 126 sq. in. and one side 7 in. .....inches.

(36) How many degrees are in the interior angle of a regular hexagon? ..... deg.

(37) A right triangle has sides 3 in., 4 in., and 5 in. What is the length of the projection of the long leg on the hypotenuse? .....in.

(38) Find the length of the external segment of a secant 10 in. long to a circle if the length of the tangent from the same point is 5 in. .....inches.

(39) Find the sum of the positive integral divisors of 21. .....

*(40) Estimate 42% of $6217. $.....

(41) Find the number of positive integral divisors of 21. .....

(42) How many positive integers less than 21 are relatively prime to 21? .....

(43) Find the 7th term: $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{11}, \frac{1}{13}$, ...

(44) Twice a number minus 4 equals three times the number plus 8. Find it. .....

(45) Find the sum of the roots of $x^2-2x+17=0$ .....

(46) Find the larger of x and y if $2x+3y=13$ and $3x-2y=0$ .....

(47) Find x if $5^{2x}=625$ .....

(48) If a boy made \$11, \$12, \$13, \$14, \$15 and \$16 on Monday, Tuesday, etc., until Saturday, how much did he make the whole week? \$.....

(49) In how many ways can the integers 1,2,3, be ordered? .....

*(50) Estimate as a decimal the number of ft. per second a car moves at 68 miles per hour. .....ft. per sec.

(51) Find the largest prime divisor of 258. .....

(52) $1\frac{1}{2}$ is to $5\frac{1}{2}$ as 6 is to .....

(53) Find the largest common divisor of 81 and 87. .....

(54) Two ordered pairs (a,b) and (c,d) are equal if and only if $a=c$ and $b=d$. How many unequal ordered pairs can be formed from (1,2,3,4)? Allow the same number to appear twice in an ordered pair. .....

(55) How many primes are less than or equal to 24? .....

(56) At $52\frac{1}{2}$ mph how far does a car travel in 11 hours? .....

..... miles.

(57) Change 72 pesos to dollars at $12\frac{1}{2}$ pesos to the dollar. \$.....

(58) Find the product of the least common multiple and greatest common divisor of 55 and 70. .....

(59) Find the difference in cost of 7 gallons of gasoline at 30.5¢ and 9 gallons at 21.5¢. \$.....

*(60) Estimate $5\times6\times7\times8\times9=$ .....

(61) If $x=18$, find x^2+x+2. .....

(62) After getting a $33\frac{1}{3}\%$ increase Struggling Sam made \$660. What did he make previously? \$.....

(63) Jarring Jud, in the game with Tombstone, made —1, 0, 5, 6, 3, —1, 18, —8, 7, 3, 0 and —1 yards. Find his average. .....yds.

(64) Rachel is 3 times as old as Jill, but 2 years from now will be 2 times as old as Jill. How old is Jill? .....years.

(65) If each of 100 Italian coins is worth 16¢, how many are worth \$13.76? .....

(66) The largest positive integral divisor of 187 is .....

(67) Find the side of a square whose area is $42\frac{1}{4}$ sq. in. .....

..... inches.

(68) Find the tax on $13\frac{1}{2}$ million gallons of gasoline at $4\frac{1}{2}$¢ per gallon. \$.....

(69) $\frac{3}{4}\times68\frac{1}{2}=$ .....

*(70) Estimate the number of posts placed $10\frac{1}{2}$ ft. apart it takes to fence a rectangular field 525 ft. by 1050 ft. .....posts.

(71) Find the area of a square with diagonal of 15 ft. .....sq. ft.

(72) $50\frac{5}{8}\div16\frac{7}{8}=$ .....

(73) $1\frac{3}{8}\times64=$ .....

(74) Find the cost of 5500 pegs at \$4.56 per 1000. \$.....

(75) 21 is what percent more than 18? .....%.

(76) Subtract \$17.37+\$11.51 from \$34.57+\$16.59. \$.....

(77) $6^3-4^3=$ .....

(78) $\sqrt{5\ 19/25}=$ .....

(79) If it takes 5 men 3 days to do a piece of work, how long will it take 2 men? .....days.

*(80) A rectangle whose area was 100 sq. ft. had each dimension multiplied by 6.7. Estimate its new area. .....sq. ft.

The University of Texas Interscholastic League

Number Sense Test, Series Y-7

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) 63+27= .....

(2) 19×15= .....

(3) 345÷7= .....

(4) 35% of 700= .....

(5) 3½×44 .....

(6) 48÷1½= .....

(7) 23+56—39= .....

(8) ⅜×64= .....

(9) 291÷41= .....

*(10) Estimate 4464÷38= .....

(11) 440 yd.= .....mi.

(12) 3456 cu. in. = ...cu. ft.

(13) 156 sq. ft. = ...sq. yd.

(14) 35 pk. = ...bu.

(15) 10/7= .....%.

(16) 264 = 75% of .....

(17) 12½% of 84= .....

(18) 30/18= .....%.

(19) 33⅓% of 98= .....

*(20) At 12.5 pesos to the dollar, estimate the cost in pesos of a car costing 2512 dollars. .....pesos.

(21) 21/12= .....%.

(22) 84=83⅓% of .....

(23) 20% of 312= .....

(24) Find the simple interest on $7800 at 6¾%. $.....

(25) If $810 is the simple interest on $18,000 for one year, what is the rate? .....%.

(26) If the simple interest on a principal for 3 years at 5% is $285, what is the principal? $.....

(27) Find the simple interest on $1400 for one year at 4½%.

$.....

(28) Find the tax on 18,962 gallons of gasoline at 9¢ per gallon.

$.....

(29) A man's taxable income is $3000. Find his tax if the rate is 16% on first thousand, 16½% on second, and 17% on the third.

$.....

*(30) If it is 657 kilometers to Mexico City, and one kilometer equals .62 miles, estimate the number of miles to Mexico City.

..... miles.

(31) 38×42= .....

(32) 125×180= .....

(33) 95%÷5= .....

(34) ½×91½= .....

(35) Find the area of a triangle whose base is 9 in. and whose altitude is 82 in. .....sq. in.

(36) Find the area of a square whose diagonal is $\sqrt{8}$ in.

..... sq. in.

(37) How many degrees are in each interior angle of a regular octagon?

..... degrees.

(38) Find the altitude on the hypotenuse of a right triangle with sides 5 in., 12 in., and 13 in. ..... inches.

(39) If the length of the line of centers of two tangent circles is 5 in. and the difference of the radii is 1 in., the radius of the greater circle is ..... inches.

*(40) Estimate what amount of money invested at 7½% simple interest brings $357 in one year. $.....

(41) Find the sum of the positive integral divisors of 25.....

(42) Find the number of positive integral divisors of 25.....

(43) How many positive integers less than 25 are relatively prime to it? .....

(44) Find the 6th term: 1/1, 1/4, 1/9, 1/16, 1/25 . . . .

(45) If ⅔ of a number plus 5 equals 23, the number is .....

(46) Find the sum of the roots $x^2 - (7/2)x + 15 = 0$. .....

(47) Find the larger of two numbers x and y such that $2x+3y=7$ and $3x-2y=4$ .....

(48) Find x if $3^x4^x=144$ .....

(49) If a boy made \$1 on Monday and each day made 3/2 times as much as on the preceding day, how much did he make on Wednesday? \$ .....

*(50) Estimate $1624 + 5218 - 3622 + 1566 =$ .....

(51) If Will is twice as old as Mary, but 12 years from now will be only 3/2 as old, how old is Mary? .....years.

(52) If it takes 5 men 9 days to do a job, how long will it take 3 men? ..... days.

(53) In how many ways may the integers 1, 2, 3, 4 be ordered? .....

(54) Find the largest prime divisor of 295. .....

(55) The third proportional to 4 and 6 is .....

(56) The greatest common divisor of 60, 90, and 45 is .....

(57) How many primes are less than or equal to 29? .....

(58) If a car traveled 55½ miles an hour, how many miles will it travel in 11 hours? .....miles.

(59) Convert 76 pesos to dollars and cents at 12½ pesos to the dollar. \$.....

*(60) Estimate the product $5\times7\times6\times13\times2=$ .....

(61) Find the product of the greatest common divisor and least common multiple of 65 and 50. .....

(62) Find the difference in the cost of 7 gallons of gasoline at 29.5¢ and 9 gallons at 20.5¢. \$.....

(63) If $x=6$, find x^3+2x+3 .....

(64) After a 37½% raise Mighty Mike, the strong man, made \$550 per month. How much did he make before the raise? \$.....

(65) In the game with Eastwood, Terrible Tubby made 15, 0, 7, —9, 8, 7, 0, —3, 6, 1, 0 and 4 yards. What was his average? ..... yards.

(66) What must be my average speed if I am to travel 728 miles in 13 hours? .....m.p.h

(67) Find the area of a triangle whose sides are 4½ in., 6 in., and 7½ in. ..... sq. in.

(68) $57\times43=$ .....

(69) 720 miles per hour = ...ft. per sec.

*(70) Estimate the cost of a hat which was marked at \$45 and discounted 20%, and 10%. \$.....

(71) $91+2⅜+6½+⅛=$ .....

(72) Find the smallest number greater than 13 which divides 2210. .....

(73) If the perimeter of a square decreases by 36 in. find the decrease in the side. .....in.

(74) $387½\div77½=$ .....

(75) $\sqrt{56¼}=$ .....

(76) $2½\times26½=$ .....

(77) Find the decrease in the area of a square when the perimeter decreases from 58 in. to 48 in. .....sq. in.

(78) Find the 5th term of ⅛, 1/10, 1/26, 1/37 .....

(79) Find the smallest positive integer x such that $7x-3$ is divisible by 6. .....

*(80) If two circles have diameters 14 and 22, estimate a decimal equal to the ratio of the area of the smaller to the larger. .....

The University of Texas Interscholastic League

Number Sense Test, Series Y-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) 36—48+162= .....

(2) 1519—632= .....

(3) $9\frac{3}{4}\times 96=$ .....

(4) $(31\times 56)-(62\times 22)=$ .....

(5) $2\frac{1}{2}+4\frac{1}{2}-3\frac{3}{4}=$ .....

(6) $333\div 1/11=$ .....

(7) 42 6/7% of 63= .....

(8) $25\times 176=$ .....

(9) $2240\div 70=$ .....

*(10) If it costs $104.97 to drive 1296 miles, estimate to the the nearest 10th of a cent the average cost per mile. $.....

(11) 171/90= .....%.

(12) 104=80% of .....

(13) 25% of 1766= .....

(14) 38/20= .....%.

(15) $84=87\frac{1}{2}\%$ of .....

(16) 30% of 86= .....

(17) 5/11= .....%.

(18) $5\frac{1}{2}\%$ of 42 = ...

(19) Find the simple interest on $84,000 at $4\frac{3}{4}\%$ for one year. $.....

*(20) Estimate $6\times 7\times 9\times 11=$ .....

(21) At what rate of simple interest will $25,000 yield $1000 interest in two years? .....%.

(22) A certain principal yielded $4860 in 3 years at 6% simple interest. What was the principal? $.....

(23) Find the simple interest on $1926 at 6%. $.....

(24) Poor Tom's taxable income was $3000. What was his tax at 16% on the first $1000, $16\frac{1}{2}\%$ on the next, and 18% on the third $1000. $.....

(25) $175\times 184=$ .....

(26) $79\times 81=$ .....

(27) $75\frac{3}{4}\div 3=$ .....

(28) $\frac{7}{8}\times 45\frac{5}{8}=$ .....

(29) Find the area of a triangle whose sides are 10 in., 24 in., and 26 in. .....sq. in.

*(30) Estimate the volume, as a decimal, of a right circular cylinder whose base has an 11 ft. diameter and whose altitude is 10 ft. ..... cu. ft.

(31) Find the area of a rhombus if one diagonal is twice the other and their sum is 12 in. .....sq. in.

(32) How many degrees are in the interior angle of a regular 12-sided figure? .....degrees

(33) Find the radius of a circle inscribed in an equilateral triangle whose side is $2\sqrt{3}$ in. .....in.

(34) A dog kept his same shape and weight per unit volume as he grew from 5 in. long to 25 in. long and from a weight of ½ lb. What was his weight when 25 in. long? .....lb.

(35) Find the sum of the positive integral divisors of 28. .....

(36) How many positive integers are less than 28 and relatively prime to 28? .....

(37) Find the 6th term of 1/1, 1/8, 1/27, 1/64, 1/125 . . . .

(38) If 28 minus ¾ a number equals ½ the number minus 2, the number is .....

(39) Find the sum of the three roots of $x^3+7x^2+2x-7=0$.....

.....

*(40) Estimate $324^2-316^2=$ .....

(41) Find x +y if 2x—y=0 and 2x+y=0 .....

(42) Find x if $2^{3x}=64$ .....

(43) Find 2^9. .....

(44) Tim is now twice as old as Mary but 6 years from now will be 4/3 times as old as Mary. How old is Tim now? ..... years.

(45) In how many ways can the numbers 1, 2, 3, 4, 5, and 6 be ordered? .....

(46) Find the largest prime divisor of 366. .....

(47) The third proportional to 6 and 6 is .....

(48) Find the greatest common divisor of the three numbers 105, 33 and 55. .....

(49) How many unequal sums of two different integers can be formed from 1,2,3,4? .....

*(50) If it is 1310 kilometers from a point A to Mexico City and .62 miles equal one kilometer, how many miles is it from A to Mexico City (estimate)? .....miles.

(51) Convert 90 pesos to dollars and cents at 12½ pesos to the dollar. $.....

(52) Find the product of the least common multiple and greatest common divisor of 30 and 45. .....

(53) Find the difference in cost of 7 gallons gasoline at 20.5¢ and 9 gallons at 30.5¢. $.....

(54) If x= 7, find x^2-7x+6. .....

(55) After a 28 2/7% raise Rising Richard made $540. What did he make before the raise? $.....

(56) Flashy Phil, during the game with the Dragons, made 2, 0, 5, —2, 7, 0, 6, 8, —3, 12, —1, and 8 yards. Find his average. ..... yards.

(57) 63 cu. ft= .....cu. yd.

(58) 1920 acres = ...sq mi.

(59) 432 sq. in. = ...sq. ft.

*(60) An article was discounted 15%, and 5%. Estimate a single discount equivalent to these two. .....%.

(61) 15 sq. ft. = ...sq. yd.

(62) How many primes are less than or equal to 31? .....

(63) At 56 miles per hour, how far can a car travel in 8¾ hours? ..... mi.

(64) 1806÷86= .....

(65) Find the cost of 76 liters of gasoline at 8¾¢ a liter. $.....

(66) 546 is what percent more than 420? .....%.

(67) ⅜ is what percent of ⅔? .....%.

(68) Find the tax on a $11,500 automobile at $2.20 per $100. $.....

(69) How much must be deposited at 4¾% in order to get $665 simple interest in one year? $.....

*(70) Estimate the percent increase in area of a rhombus which retains its shape while the longer diagonal changes from 9 to 13. .....%.

(71) $(33\times8\frac{2}{3})-(66\times2\frac{2}{3})=$ .....

(72) Find the greatest prime divisor of 221. .....

(73) If the area of a square decreases from 12¼ sq. in. to 6¼ sq. in. find the decrease in perimeter. .....in.

(74) $(2\frac{2}{3})^2-(1\frac{1}{3})^2=$ .....

(75) If a principal of $4000 yields $180 in one year, find the rate of simple interest. .....%.

(76) Find the tax on 1400 acres valued at $40 per acre at $2.12½ per $100 value. $.....

(77) $24\times24\frac{3}{4}=$ .....

(78) A box contains 10 each of red, white and blue balls. What is the smallest number of draws before a blind man can be sure he has a red ball? .....

(79) At 90 miles per hour, how many ft. per sec. am I traveling? ..... ft. per sec.

*(80) Estimate the dollar and cent equivalent of 587 pesos at 12½ pesos to the dollar. $.....

The University of Texas Interscholastic League

NOTE: If error is found in this Key, grade by the correct answer. Also, please report any error to the State Office, Box 8028, University Station.

Key to Number Sense TEST SERIES Y-1

1. 32
2. 224
3. 12
4. 37 1/2%
5. 8 1/3
6. 5/24
7. 20.96
8. 4 2/3
9. 341
*10. 8299–9173
11. 88 pk.
12. 16 1/3 doz.
13. 264 eggs
14. 14 1/3 ft.
15. 95%
16. 48
17. 57.6 or 57 3/5
18. 28 4/7%
19. 8.95 or 8 19/20
*20. 43,776–48,384
21. 37 1/2%
22. 40
23. 95.92
24. $28
25. 6%
26. $20,000
27. $330
28. $1360
29. $585
*30. 36.1–39.9
31. 24,800
32. 896
33. 18 1/7
34. 64 5/9
35. 30 sq. in.
36. 300 sq. yd.
37. 72°
38. 8 in.
39. 4
*40. 12.19%–13.47%
41. 28
42. 6
43. 4
44. 36
45. —14
46. 3
47. 1
48. 2
49. $63
*50. $25,639.09–28,337.95
51. 6
52. 29
53. 10 1/2
54. 23
55. 32
56. 13
57. 61 1/2 m.p.h.
58. 687 1/2 or 687.5 pesos
59. 11440
*60. 647.6–715.9 ft.
61. $.76
62. 972
63. $800
64. 2 2/3 yd. or 2.67 yd.
65. $63
66. 6%
67. 15 gal.
68. $300
69. 744°
*70. 769.5–850.5 gal.
71. 45 1/3
72. 44,625
73. 62
74. 35
75. 36%
76. 202 1/2
77. 4 mi.
78. 900
79. 237
*80. $3007.13–$3323.67

Key to Number Sense TEST SERIES Y-2

1. 38
2. 858
3. 140
4. 14
5. 1 1/3
6. 1/4
7. 1010
8. 3162
9. 174
*10. $69,896.25–$77,253.75
11. 2 1/4 miles
12. 2 cu. ft.
13. 22 sq. yd.
14. 12 1/2 bu.
15. 18 2/11%
16. 40
17. 32 2/3
18. 83 1/3%
19. 40
*20. 5198.4–5745.6 sq. ft.
21. 22
22. 75%
23. 81
24. $220,000
25. 6%
26. $20,000
27. $82.50
28. $836
29. $530
*30. 38.95–43.05
31. 31,500
32. 17 1/7
33. 80 5/7
34. 54 sq. in.
35. 15 ft.
36. 108°
37. 18 in.
38. 27
39. 24
*40. 5.40%–5.98%
41. 4
42. 216
43. 0
44. 6
45. 2
46. $13
47. 9
48. 4
49. 25 yr.
*50. 30,218–33,400 cu. ft.
51. 4 days
52. 29
53. 10 1/2
54. 29
55. 64
56. 14
57. 56 m.p.h.
58. 562 1/2 or 562.5 pesos
59. 1920
*60. $18,450.90–$20,393.10
61. $.22
62. 1064
63. $720
64. 2 1/4 or 2.25 yd.
65. $4.95
66. $900
67. 69
68. 92
69. 13
*70. 16.6–18.4
71. 176 ft. per sec.
72. 8 sq. in.
73. 105
74. 5%
75. 12 in.
76. 16
77. $90
78. 45 in.
79. 453
*80. $67.64–$74.76

Key to Number Sense TEST SERIES Y-3

1. 116
2. 34
3. 225
4. 58 1/2
5. 216
6. 72
7. 8064
8. 300%
9. 8 2/3
*10. $1650.01–$1823.70
11. 12 1/8 gal.
12. 132 qt.
13. 1/4 sq. mi.
14. 216 eggs
15. 1135.4
16. 75%
17. 184 1/2
18. 56
19. 25%
*20. 62.45–69.04
21. 54
22. 18.8
23. 45 5/11%
24. $60.90
25. 1.1%
26. $206
27. $1900
28. $3150
29. $510
*30. 2194.5–2425.5
31. 39,000
32. 3591
33. 1365 1/3
34. 55 5/9
35. 144 sq. in.
36. 84 sq. in.
37. 36°
38. 5 sq. in.
39. 9
*40. 54.48–60.22 m.p.h.
41. 24
42. 4
43. 8
44. 37
45. 2
46. —25
47. 3
48. 2
49. $40
*50. .57%–.63%
51. 20
52. 10/11 days
53. 9
54. 37
55. 14
56. 102
57. 128
58. 8
59. 865 m.p.h.
*60. 18.264–20,188
61. 450 pesos
62. 875
63. 362
64. $320
65. 2.6 yd. or 2 3/5 yd.
66. 1.1% or 1 1/10%
67. 150 A
68. 114
69. 224
*70. 745.0–823.5 sq. ft.
71. 15
72. 11
73. 900 sq. in.
74. 45
75. 352 ft. per sec.
76. 370
77. $1.70
78. 6 1/2 in.
79. 1695
*80. $566.87–$626.55

Key to Number Sense TEST SERIES Y-4

1. 118
2. —3
3. 5 3/8
4. 396
5. 4
6. 107
7. 7
8. 5 4/7
9. 22
*10. 46,785.6–51,710.4
11. 264 in.
12. 7040 yd.
13. 12.096 cu. in.
14. 135 sq. ft.
15. 3
16. 22 2/9%
17. 140
18. 1.6 or 1 3/5
19. 55 5/9%
*20. $105.07–$116.14
21. 200
22. 64
23. 58 1/3%
24. $342
25. 5%
26. $12,200
27. $137.50
28. $304
29. $525
*30. 81.72–90.33 sec.
31. 20,000
32. 8096
33. 220
34. 21 3/11
35. 210 sq. in.
36. 6 in.
37. 144°
38. 1 1/2 sq. in.
39. 64
*40. 5296–5855 cu. in.
41. 31
42. 5
43. 8
44. 217
45. 4
46. —1
47. 1
48. 2
49. $128
*50. 9007.9–9956.1
51. 2
52. 37
53. 2 1/2
54. 38
55. 4
56. 5
57. 54 m.p.h.
58. 200 pesos
59. 1800
*60. 196.9–217.8 sq. in.
61. $.43
62. 579
63. $600
64. 2 3/4 or 2.75 yd.
65. 239 in.
66. 77
67. 21 sq. in.
68. 44
69. 59 sq. in.
*70. 9.38–10.36
71. 1261
72. 1
73. 6000 m.p.h.
74. 40%
75. 5 1/2
76. 9 1/2
77. 4%
78. 48 m.p.h.
79. 387
*80. 55.1–60.9

Key to Number Sense TEST SERIES Y-5

1. 7
2. 45
3. 202
4. 253
5. 8
6. 6750
7. 5 1/6
8. 165
9. 33
*10. 11,531.1–12,744.9
11. 328 pk.
12. 208 pt.
13. 5 3/4 pk.
14. 7680 A
15. 48
16. 13
17. 325%
18. 162
19. 567.7
*20. 245.05–270.86
21. 37 1/2
22. 369
23. 112
24. 297
25. 5 1/2 or 5.5%
26. $1300
27. $1820
28. $535
29. 305.52
*30. { 90.24–99.74 } { kilo. per hr. }
31. 20,000
32. 8096
33. 5576
34. 21 3/11
35. 3 in.
36. 722 sq. in.
37. 60°
38. 1 4/5 in.
39. 1/4
*40. $2779.27–$3071.84
41. 39
42. 6
43. 6
44. 1/21
45. 3
46. 6
47. 1/3
48. 2
49. $32
*50. $28.02–$30.98
51. 53
52. 43
53. 1/3
54. 138
55. 9
56. 8
57. 61 2/7 m.p.h.
58. $1.50
59. 3250
*60. 2527–2794 cu. in.
61. $.11
62. 589
63. $448
64. 3 yd.
65. 72 m.p.h.
66. $12,100,000
67. $600
68. $2.24
69. 960
*70. 206.15–227.85 days
71. 0
72. 12 1/2 in.
73. 52 sq. in.
74. 13
75. 700
76. 397
77. $4
78. $2,090,000
79. 81 3/4
*80. 3648–4032

Key to Number Sense TEST SERIES Y-6

1. 124
2. 256
3. 180
4. 83 1/3%
5. 72
6. 4 2/3
7. 152
8. 374
9. 4 1/2
*10. 17.7–19.6 sq. mi.
11. 1280 A.
12. 16 5/6 doz.
13. 276 eggs
14. 10 1/6 ft.
15. 33 1/3%
16. 104
17. 9 2/5 or 9.4
18. 63 7/11%
19. 5 5/16
*20. 5422.6–5993.4
21. 75%
22. 256
23. $297
24. 5 1/2%
25. $1950
26. $3920
27. $1485
28. $545
29. 4875
*30. 79.8–88.2%
31. 13,000
32. 17 2/9
33. 104 2/5
34. 20 ft.
35. 18 in.
36. 120°
37. 3 1/5 in.
38. 2 1/2 in.
39. 32
*40. $2480.58–$2741.70
41. 4
42. 12
43. 1/17
44. —12
45. 2
46. 3
47. 2
48. $81
49. 6
*50. 94.746–104.72 ft. per sec.
51. 43
52. 22
53. 3
54. 16
55. 9
56. 577 1/2 mi.
57. $5.76
58. 3850
59. $.20
*60. 14,364–15,876
61. 344
62. $495
63. 2 7/12 yd.
64. 2 yr.
65. 86
66. 187
67. 6 1/2 in.
68. $607,500
69. 51 3/8
*70. 285–315 posts
71. 112 1/2 sq. ft.
72. 3
73. 88
74. $25.08
75. 16 2/3%
76. $22.28
77. 152
78. 2 2/5
79. 7 1/2 da.
*80. 42.64–47.14 sq. ft.

Key to Number Sense TEST SERIES Y-7

1. 90
2. 285
3. 49 2/7
4. 245
5. 154
6. 32
7. 40
8. 24
9. 32
*10. 111.6–123.4
11. 1/4 mi.
12. 2 cu. ft.
13. 17 1/3 sq. yd.
14. 8 3/4 bu.
15. 142 6/7
16. 352
17. 10 1/2
18. 166 2/3%
19. 32 2/3
*20. 29,830–32,970 pesos
21. 175%
22. 100 4/5
23. 62 2/5
24. $526.50
25. 4 1/2 or 4.5%
26. $1900
27. $63.00
28. $1706.58
29. $495
*30. 386.973–427.707 mi.
31. 1596
32. 22,500
33. 19 1/6
34. 45 3/4
35. 369 sq. in.
36. 4 sq. in.
37. 135°
38. 4 8/13 in.
39. 3 in.
*40. $4522–$4998
41. 31
42. 3
43. 20
44. 1/36
45. 27
46. 3 1/2
47. 2
48. 2
49. $2.25
*50. 4546.7–5025.3
51. 12 yr.
52. 15 da.
53. 24
54. 59
55. 9
56. 15
57. 10
58. 610.5 or 610 1/2 mi.
59. $6.08
*60. 5187–5733
61. 3250
62. $.22
63. 231
64. $400
65. 3 yd.
66. 56 m.p.h.
67. 13 1/2 sq. in.
68. 2451
69. 1056 ft. per sec.
*70. $30.78–$34.02
71. 100 1/3
72. 17
73. 9 in.
74. 5
75. 7 1/2
76. 66 1/4
77. 66 1/4 sq. in.
78. 1/50
79. 3
*80. .384–.426

Key to Number Sense TEST SERIES Y-8

1. 150
2. 887
3. 936
4. 372
5. 3 1/4
6. 3663
7. 27
8. 4400
9. 32
*10. $.077–$.085
11. 190%
12. 130
13. 441 1/2
14. 190%
15. 96
16. 25.8 or 25 4/5
17. 45 5/11%
18. 2.31
19. $3990
*20. 3950.1–4365.9
21. 2%
22. $27,000
23. $115.56
24. $505
25. 32,200
26. 6399
27. 25 1/4
28. 36 1/2
29. 120 sq. in.
*30. 902.8–997.9 cu. ft.
31. 16 sq. in.
32. 150°
33. 1 in.
34. 62 1/2 lb.
35. 56
36. 12
37. 1/216
38. 24
39. —7
*40. 4864–5376
41. 0
42. 2
43. 512
44. 6 yr.
45. 720
46. 61
47. 6
48. 1
49. 5
*50. 771.59–852.81 mi.
51. $7.20
52. 1350
53. $1.31
54. 6
55. $420
56. 3 1/2 or 3.5 yd.
57. 2 1/3 cu. yd.
58. 3 sq. mi.
59. 3 sq. ft.
*60. 76.71%–84.79%
61. 1 2/3 sq. yd.
62. 11
63. 490 mi.
64. 21
65. $6.65
66. 30%
67. 90%
68. $253
69. $14,000
*70. 103.2%–114.1%
71. 110
72. 17
73. 4 in.
74. 5 1/3
75. 4 1/2%
76. $1190
77. 594
78. 21
79. 132 ft. per sec.
*80. $44.61–$49.31