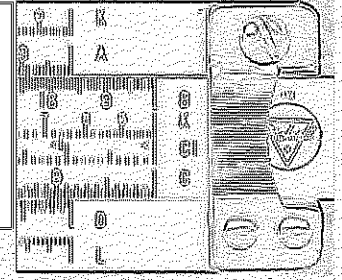
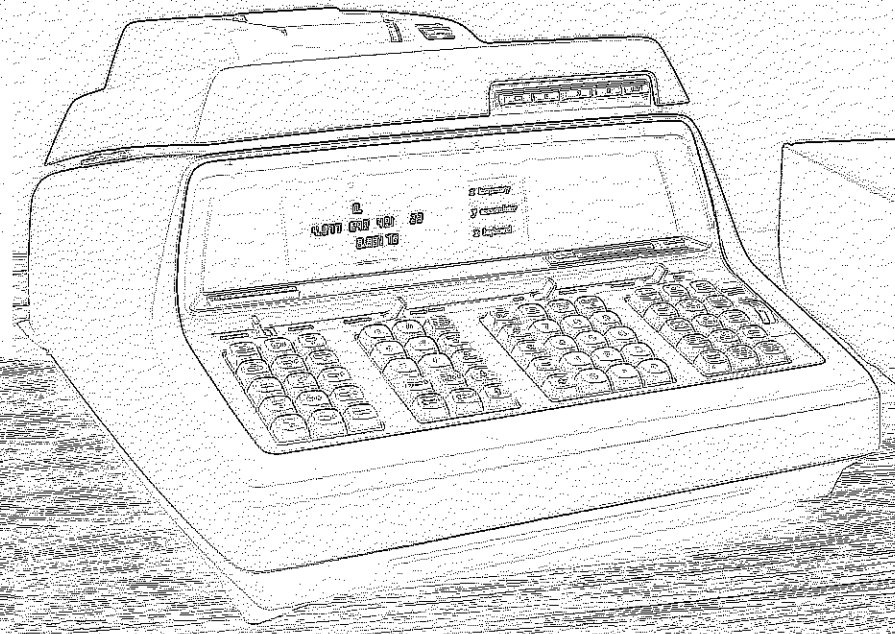
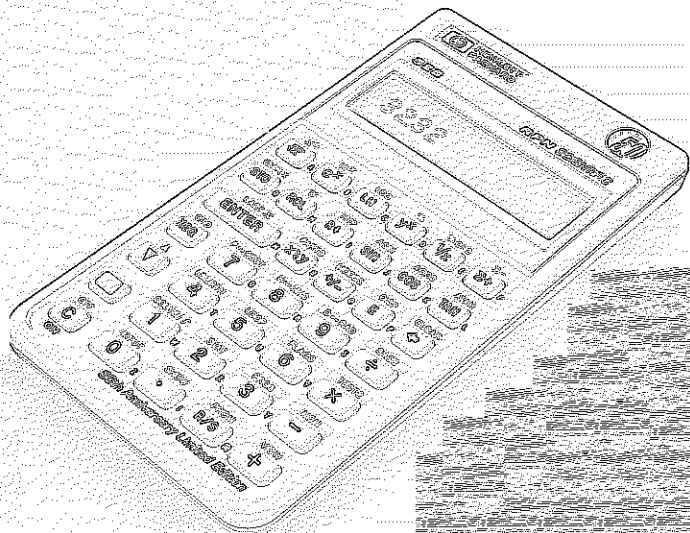
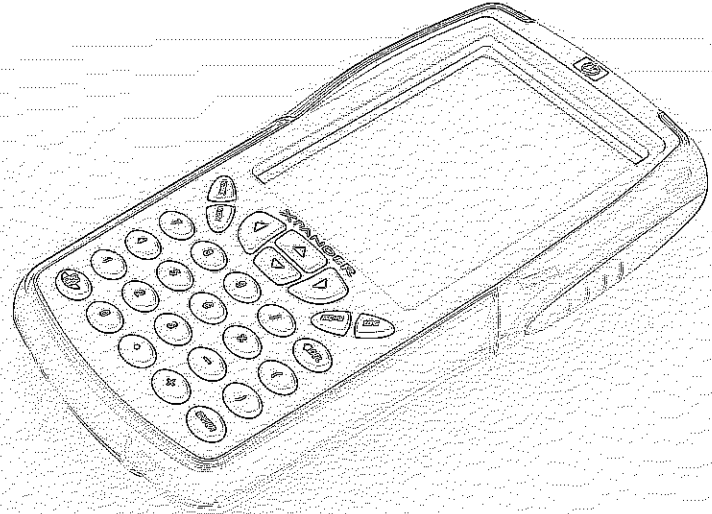
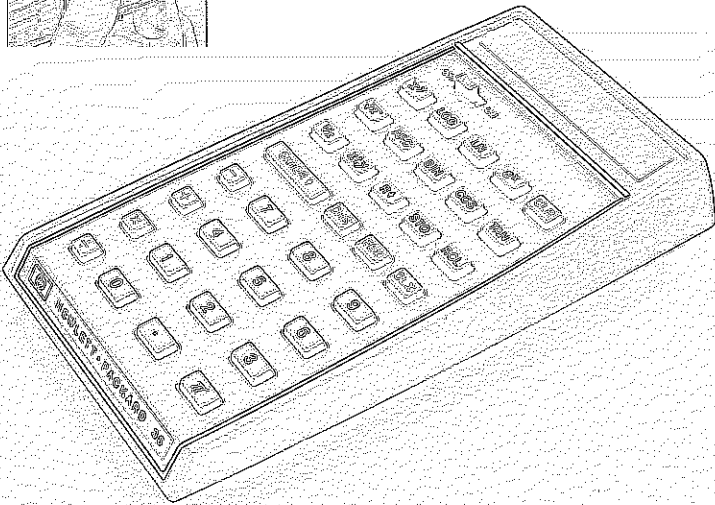
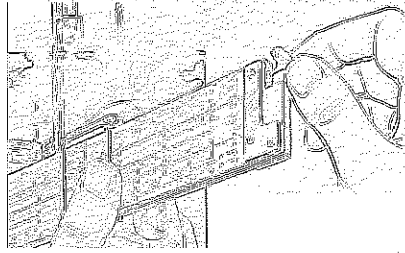
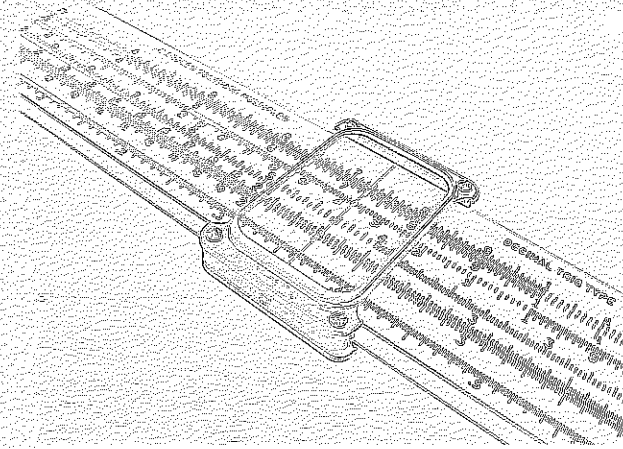
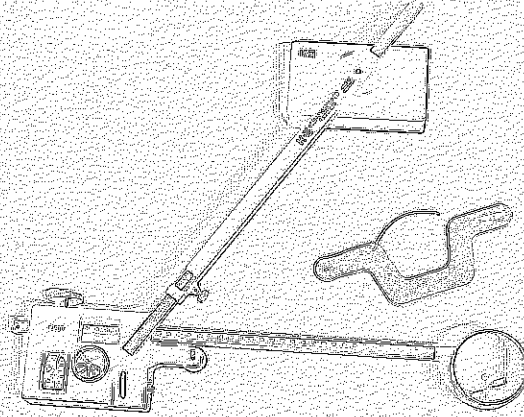
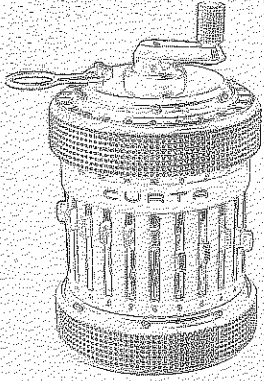


Texas Competitive Mathematics
Web - <http://www.texasmath.org>
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**1967-68 UIL Number Sense
(16 pages)**



The University of Texas Interscholastic League

Number Sense Test, Series AA-1

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

- | | |
|---|---|
| <p>(1) $27 \times 9 =$</p> <p>(2) $29 + 87 =$</p> <p>(3) $5\frac{1}{2} - 6\frac{3}{8} =$</p> <p>(4) $25^2 =$</p> <p>(5) $7 \div 2\frac{1}{8} =$</p> <p>(6) $28 \times 32 =$</p> <p>(7) $\\$2.50 \div \\$.25 =$</p> <p>(8) $7\frac{1}{2} + 3\% + 2\frac{3}{8} =$</p> <p>(9) $28\frac{4}{7} \times 140 =$</p> <p>* (10) Estimate: $3^{12} =$</p> <p>(11) $38 - 27 + 126 - 120 =$</p> <p>(12) $7\frac{4}{6} \div 2\frac{1}{2} =$</p> <p>(13) $327 + 423 + 550 =$</p> <p>(14) $210 \div 87\frac{1}{2} =$</p> <p>(15) $27^2 =$</p> <p>(16) $96.2 + 85.1 =$</p> <p>(17) $96 \times 175 =$</p> <p>(18) How many minutes are in 14 hours? min.</p> <p>(19) Change 1800 pesos to dollars at $12\frac{1}{2}$ to the dollar. \$.....</p> <p>* (20) Estimate: $827 \times 696 =$</p> <p>(21) Find the yearly tax on a \$20,000 house at 1.5¢ on the dollar if it is taxed on $\frac{3}{4}$ of its value. \$.....</p> <p>(22) Find the interest on \$450 for 1 year at 3%. \$.....</p> <p>(23) Write in figures: nine hundred ninety nine million.</p> <p>(24) 70% of 175 =</p> <p>(25) $6\frac{1}{4}\% =$ (fraction).</p> <p>(26) Solve: $2x - 7 = 9$. $x =$</p> <p>(27) $(129 \times 14) - (129 \times 2) =$</p> <p>(28) Which is larger, 0 or -4?</p> | <p>(29) Solve $2^x = 8$. $x =$</p> <p>* (30) Estimate: $876,359 \div 127 =$</p> <p>(31) Find the remainder: $[8^3 + (127 \times 8) + 35] \div 7$.</p> <p>(32) $2.8632 \div 1000 =$</p> <p>(33) $8000 \div 125 =$</p> <p>(34) If two oranges cost 25¢, find the cost of 10. \$.....</p> <p>(35) Find the next term: 0, 3, 6, 9, 12,</p> <p>(36) Find the sum of the positive integral divisors of 8.</p> <p>(37) Find the largest prime divisor of 132.</p> <p>(38) Find the least common multiple of 6, 22, 15.</p> <p>(39) The number of positive integral divisors of 12 is</p> <p>* (40) Estimate: $213 + 8142 + 3427 + 31787 =$</p> <p>(41) What is the net price on a \$1.00 tie after discounts of 10% and 10%?</p> <p>(42) $22 \div 3\frac{1}{7} =$</p> <p>(43) If $a/5$ and $b/5$ each give a remainder of 3, what is the remainder for $ab/5$?</p> <p>(44) $101^2 =$</p> <p>(45) How many 16 lb. bags weigh the same as eight 12 lb. bags?</p> <p>(46) $3 \times 8 \times 9 \times 2 \times 5 =$</p> <p>(47) If r, s, and t are the roots of $(x-1)(x-2)(x-3) = 0$, then $rs + rt + st =$</p> <p>(48) $35 \times 17 =$</p> <p>(49) $16\frac{2}{3}\% =$ (fraction).</p> <p>* (50) Estimate the number of $4'' \times 4''$ tiles which are required to cover a $13' \times 13'$ floor.</p> <p>(51) What is the smallest number greater than every number of the sequence: .6, .66, .666,</p> <p>(52) Write 9 in the base 8 system.</p> |
|---|---|

- (53) $250 \times 56 =$
- (54) $\frac{7}{8} - 5/12 =$
- (55) If Tom is three times as old as he was 2 years ago, his age in years is yr.
- (56) Write 8 in Roman numerals.
- (57) Find the cost per 1000 buttons if 8 buttons cost 29¢. \$.....
- (58) $12.75 - 9.86 =$
- (59) 51 bu = pk.
- *(60) Estimate: If L is in feet, the formula $W = 3.51 L - 192$ gives the weight of a large blue whale in long tons (2240 lb.). Find the weight in tons (2000 lb.) of such a whale 60 ft. long. T.
- (61) $\sqrt{784} =$
- (62) Find the hypotenuse of a right triangle with legs of 5 in. and 12 in. in.
- (63) Find the perimeter of an equilateral triangle of area $(\frac{1}{4}) \sqrt{3}$ sq. in. in.
- (64) Find the area of a square with diagonal of 3".sq. in.
- (65) $\{(1, 2), (1, 3), (2, 4)\} \cap \{(1, 2), (2, 3), (3, 4)\} = \{.....\}$
- (66) Find the length of the tangent from a point 5 in. from the center of a circle of radius 4 in. in.
- (67) $5^{-2} =$
- (68) Chords AB and CD of a circle intersect at P so that $AP = 5''$, $PB = 8''$, and $CP = 4''$. The length of PD = in.
- (69) The area of a rhombus with diagonals of 4" and 5" is sq. in.
- *(70) Estimate: $\pi^3 =$
- (71) How many cu. yd. are in a truck bed $4' \times 6' \times 13\frac{1}{2}'$?cu. yd.
- (72) $9624 \div 12 =$
- (73) How many elements are in the power set for $\{1, 2, 3, 4\}$?
- (74) Find the remainder when 1365 is divided by (-2)
- (75) Find the remainder when 13×96 is divided by (-1)
- (76) $(\sqrt{9})(4^2) =$
- (77) $[(2 \times 8) + (3 \times 4)] 6 =$
- (78) What is the probability that two heads will come up when two coins are flipped? (fraction).
- (79) Lines are drawn from a point P within a triangle to the vertices. How many colors must be used so that no two of the three adjacent parts (except at P) are the same color?
- *(80) Estimate: $(89 \times 96725) \div 24$

The University of Texas Interscholastic League

Number Sense Test, Series AA-2

Contestant's Number.....

Contestant's Score.....

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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 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.

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Stop—Wait for Signal

- | | |
|---|--|
| <p>(1) $5\% \div 2\frac{1}{2} =$</p> <p>(2) $26 + 37 + 73 + 54 =$</p> <p>(3) $\frac{7}{8} \times 5280 =$</p> <p>(4) $5\frac{1}{2} + 3\frac{3}{8} + 2\frac{1}{2} + \frac{1}{8} =$</p> <p>(5) $187 + 256 - 37 - 6 =$</p> <p>(6) $(87\frac{1}{2} \times 100) + (12\frac{1}{2} \times 100) =$</p> <p>(7) $36^2 =$</p> <p>(8) $58 \times 62 =$</p> <p>(9) $(8 + 3)(8 + 4) =$</p> <p>* (10) Estimate: $4^{12} =$</p> <p>(11) $8\frac{1}{8}\% =$ (fraction).</p> <p>(12) 40% of = 180.</p> <p>(13) Find the yearly tax on a \$15000 house at 2¢ on the dollar if it is taxed at $\frac{2}{3}$ of its value. \$.....</p> <p>(14) Change 3000 pesos to dollars at $12\frac{1}{2}$ to the dollar. \$.....</p> <p>(15) $18.25 - 7.5 =$</p> <p>(16) Write in figures the number: one billion, one hundred.</p> <p>.....</p> <p>(17) Find the interest on \$450 for 1 yr. at $3\frac{1}{2}\%$. \$.....</p> <p>(18) How many minutes are in 24 hours? min.</p> <p>(19) $125 \times 160 =$</p> <p>* (20) Estimate: $49 \times 1826 =$</p> <p>(21) $9620 \div 13 =$</p> <p>(22) How many elements are in the power set for {1, 2, 3, 4, 5}?</p> <p>(23) Find the remainder when 89763 is divided by 3.</p> <p>(24) Find the remainder when 89×78 is divided by 3.</p> <p>(25) How many gallons at $7\frac{1}{2}$ to the cu. ft. are in a rectangular pool $1' \times 5' \times 5'$? gal.</p> <p>(26) Solve: $4^x = 2$. $x =$</p> <p>(27) Which is larger, $\frac{1}{2}$ or $\frac{1}{3}$?</p> | <p>(28) $(2 \times 1\frac{3}{4}) \div 2\frac{1}{2} =$</p> <p>(29) Solve: $3x - 4 = 2x + 4$. $x =$</p> <p>* (30) Estimate: $896,523 \div 250 =$</p> <p>(31) Find the sum of the positive integral divisors of 10.</p> <p>(32) Find the largest prime divisor of 85.</p> <p>(33) Find the least common multiple of 8, 9, 28.</p> <p>(34) The number of positive integral divisors of 18 is</p> <p>(35) Find the remainder: $[14^2 + (3 \times 14) + 5] \div 13$.</p> <p>(36) $129 \times 100 =$</p> <p>(37) $801 \div 33\frac{1}{8} =$ (fraction).</p> <p>(38) At \$3.60 per 100 lb., find the cost of 750 lb. of greens. \$.....</p> <p>(39) Find the next term: 1, 4, 10, 19, 31,</p> <p>* (40) Estimate: $213 + 814 + 342 + 317 + 421 =$</p> <p>(41) $16^2 (4 + 6) =$</p> <p>(42) Five men date five women. If none of the women are taken, how many choices does the first man have?</p> <p>(43) $[5 - (3 \times 6)] 4 =$</p> <p>(44) A square is divided into four parts by the diagonals. How many colors must be used so that no two adjacent parts (except at the center) are the same color?</p> <p>(45) How many gallons of water must be added to 5 gal. of a 10% solution to make it a 5% solution? gal.</p> <p>(46) $15\frac{5}{8}\% =$ (fraction).</p> <p>(47) $17 \times 34 =$</p> <p>(48) Find the product of the three solutions of $(x - 1)(x - 2)(x - 3) = 0$.</p> <p>(49) $5 \times 7 \times 8 \times 6 \times 2 =$</p> <p>* (50) Estimate: How many $4'' \times 6''$ tiles are required to cover a $11' \times 11'$ floor?</p> |
|---|--|

- (51) If $a/7$ and $b/7$ give remainders of 2 and 3 respectively, find the remainder for $ab/7$
- (52) $135^2 =$
- (53) How many 7 lb. bags will it take to weigh equally as five fourteen lb. bags?
- (54) $8 \times 3\frac{1}{3} =$
- (55) If x and y are integers such that $7x + 11y = 1$, find the smallest possible positive value of x . $x =$
- (56) 11 mi. =ft.
- (57) Find the cost per button if 6 buttons cost \$1.68. \$.....
- (58) $15.9 - 9.8 =$
- (59) Write 12 in Roman numerals.
- * (60) Estimate: If L is in feet, the weight in long tons (2240 lb) of a large fin whale is given by $W = 2.17L - 97.7$. Find the weight in short tons (2000 lb.) of such a whale 50 ft. long.T.
- (61) Find Joe's age if he is twice as old as he was two years ago.yr.
- (62) $\frac{5}{6} - \frac{3}{4} =$
- (63) $150 \times 96 =$
- (64) Write 12 in the base 8 system.
- (65) Find the smallest number greater than every number in the sequence: .3, .33, .333,
- (66) Find the hypotenuse of a right triangle with legs 15" and 8".
..... in.
- (67) Find the diagonal of a square whose area is 8 sq. in.in.
- (68) If the tangent from P to a circle with center O and radius 5" is 12", find POin.
- (69) Chords AB and CD of a circle intersect at P so that $AP = 7"$, $PB = 8"$, and $CP = 28"$. Find PDin.
- * (70) Estimate: $\pi^2 =$
- (71) $\sqrt[3]{1331} =$
- (72) Find the perimeter of an equilateral triangle whose area is $9/4\sqrt{3}$ sq. in. inches.
- (73) $\{(1, 2), (2, 3), (3, 4)\} \cup \{(1, 2), (2, 3), (3, 5)\}$. {.....}
- (74) $(4)^{5/2} =$
- (75) If the area of a rhombus is 16 sq. in. and one diagonal is 4 in., the other diagonal isin.
- (76) Triangle A with altitude 8" is similar to triangle B with altitude 10". Find the ratio of the area of the larger to that of the smaller.
.....
- (77) $(2 + 3) 5 - 7 (8 - 9) =$
- (78) Find the total expense of redoing a house: 8 gal. paint at \$3.50 per gal.; screen wire, \$2.00; shingles, \$2.50; miscellaneous, \$3.00; labor, \$100.00. \$.....
- (79) What is the probability that three heads will come up when three coins are flipped?(fraction).
- * (80) Estimate: $927 \times 622 \div 45 =$

The University of Texas Interscholastic League

Number Sense Test, Series AA-3

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

- | | |
|--|--|
| <p>(1) $66\frac{2}{3} \times 600 =$</p> <p>(2) $28 + 34 + 66 + 175 =$</p> <p>(3) $15 \div 2\frac{1}{2} =$</p> <p>(4) $221 \div 13 =$</p> <p>(5) $3\frac{1}{2} + 4\% - 2\frac{1}{2} =$</p> <p>(6) $89 \times 91 =$</p> <p>(7) $174 + 37 + 26 - 137 =$</p> <p>(8) $7^3 =$</p> <p>(9) $17\frac{1}{2} \div 8\frac{3}{4} =$</p> <p>* (10) Estimate: $5^6 =$</p> <p>(11) Find the principal plus the interest on \$500 for 1 yr. at $3\frac{1}{2}\%$.
\$.....</p> <p>(12) $162.5 \times 8000 =$</p> <p>(13) Write in figures the number: one billion, one thousand.
.....</p> <p>(14) $96.7 - 85.1 =$</p> <p>(15) 90% of 100,000 =</p> <p>(16) Find the tax on a \$10,000 house at 2¢ on the dollar if it is taxed at $\frac{1}{2}$ its value. \$.....</p> <p>(17) How many minutes are in the time from 6 A.M. to 6:30 P.M. (same day)? min.</p> <p>(18) Change 28¢ to pesos at $12\frac{1}{2}$ pesos to the dollar. pesos.</p> <p>(19) $12\frac{1}{2}\% =$ (fraction).</p> <p>* (20) Estimate: $29 \times 3524 =$</p> <p>(21) $(28 + 28 + 56) \div 28 =$</p> <p>(22) Solve: $8 - 2x = 2(x + 4)$. $x =$</p> <p>(23) 8 gal., 3 pt. = qt.</p> <p>(24) Solve: $64^x = 4$. $x =$</p> <p>(25) Which is larger, $a = 3^2$, or $b = (\frac{1}{4})^{-4}$?</p> <p>(26) How many elements are in the power set for {1, 2, 3, 4, 5, 6}?</p> | <p>(27) $964 \div 14 =$ (fraction).</p> <p>(28) Find the remainder when 89,763 is divided by 10.</p> <p>(29) Find the remainder when 87×98 is divided by 4.</p> <p>* (30) Estimate: $628,374 \div 329 =$</p> <p>(31) Find the largest prime divisor of 119.</p> <p>(32) Find the least common multiple of 6, 9, 15.</p> <p>(33) How many prime divisors does 30 have?</p> <p>(34) Find the sum of the positive integral divisors of 12.</p> <p>(35) $.005 \times 10,000 =$</p> <p>(36) $684 \div 16\frac{2}{3} =$ (decimal).</p> <p>(37) Find the remainder when $51^3 + (3 \times 51) + 8$ is divided by 50.
.....</p> <p>(38) Write the cheaper price per apple: 17¢ for 3 or 36¢ for 6.
..... ¢ per apple.</p> <p>(39) Find the next term of 1, 4, 9, 16, 25,</p> <p>* (40) Estimate: $812 + 81 + 8121 + 8257 =$</p> <p>(41) Find the sum of the three solutions of $x^3 - 7x^2 + 14x - 8 = 0$.
.....</p> <p>(42) $5 \times 9 \times 2 \times 11 \times 5 =$</p> <p>(43) $22 \times 33 =$</p> <p>(44) $33\frac{2}{3}\% =$ (fraction).</p> <p>(45) $27 \times 5\frac{1}{2} =$</p> <p>(46) If x and y are integers such that $7x + 11y = 1$, what is the smallest possible positive value of y? $y =$</p> <p>(47) $103^2 =$</p> <p>(48) The remainders for $a/6$ and $b/6$ are 5 and 2, respectively. What is the remainder for $ab/6$?</p> <p>(49) How many 7 lb. bags will have the same weight as 14 nine lb. ones?</p> |
|--|--|

- * (50) Estimate: How many $4'' \times 8''$ tiles are required to cover a $12' \times 12'$ floor?
- (51) Find the smallest number greater than every number in the sequence: $1, 1\frac{1}{2}, 1\frac{3}{4}, 1\frac{7}{8}, \dots$
- (52) $225 \times 37 =$
- (53) $5/12 - 1/8 =$
- (54) Write 19 in Roman numerals.
- (55) $12 \text{ mi.} =$ yd.
- (56) Write 17 in the base 8 system.
- (57) Find Mary's age if she is twice as old as she was $2\frac{1}{2}$ yr. ago. yr.
- (58) Find the cost per egg if 3 doz. cost \$1.80.¢
- (59) $6.25 - 3.87 =$
- * (60) Estimate: If the wt. of a horse is given in long tons (2240 lb.) by $W = (1/10) H - 3\frac{1}{2}$, H in inches, find the wt. in pounds of a horse 40 in. high. lb.
- (61) If the diagonal of a square is $4\sqrt{2}$ in, the perimeter is in.
- (62) Find the length of the projection of the 7" leg of a right triangle on its 25" hypotenuse. in.
- (63) $7^{-1} =$
- (64) Find the length of the tangent from a point 13 in. from the center to a circle of radius 12 in. in.
- (65) $\{(1, 3), 2, (3, 4)\} \cap \{3, (1, 2), 2\} = \{ \dots \}$.
- (66) Find the area of a square whose diagonal is 3". sq. in.
- (67) Find the length of a side of an equilateral triangle whose area is $(81/4) \sqrt{3}$ ". in.
- (68) Find the area of a right triangle with one leg 20" and hypotenuse 29 in. sq. in.
- (69) $\sqrt{961} =$
- * (70) Estimate: $\pi^4 =$
- (71) What is the probability that 1 head and 1 tail will come up when two coins are flipped? (fraction).
- (72) $(3 + 4 + 5) (8 + 9 - 2) =$
- (73) Lines are drawn from P, inside a regular pentagon to the five vertices. How many colors must be used so that no two adjacent parts are colored alike (except at P).
- (74) Five men date five women. If no women are already taken, in how many ways may a given two men select dates?
- (75) $(120 + 5) (118 + 7) =$
- (76) How many gallons of water must be added to 4 gallons of a 15% solution to make it a 5% solution? gal.
- (77) A plane parallel to the base of a pyramid of height 30' cuts off one of height 10'. What is the ratio of the volume of the smaller to that of the larger?
- (78) $5[6 + 2(3 - 1)] - 8 =$
- (79) Find my expense for the birds: repair of house, \$2.00; grain, \$10.00; humming bird nectar, \$0.50; bath, \$10.00. \$.....
- * (80) Estimate: $(818 + 717 + 787 + 496) \div 52 =$

The University of Texas Interscholastic League

Number Sense Test, Series AA-5

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

- | | |
|--|--|
| <p>(1) $52 \times 48 =$</p> <p>(2) $22 \frac{2}{9} \times 81 =$</p> <p>(3) $6 \frac{1}{9} \times \frac{4}{5} =$</p> <p>(4) $128 + 56 + 16 =$</p> <p>(5) $8\frac{1}{2} - 2\frac{1}{4} =$</p> <p>(6) $255 \div 15 =$</p> <p>(7) $62 - 27 + 36 =$</p> <p>(8) $60 \div 8 =$ (fraction).</p> <p>(9) $19^2 =$</p> <p>* (10) Estimate: $8^8 =$</p> <p>(11) 116% of 600 =</p> <p>(12) Find the greatest common divisor of 26, 65, 91.</p> <p>(13) $27 \frac{3}{11}\% =$ (fraction).</p> <p>(14) Write the number in figures: one billion, one million, one thousand.
.....</p> <p>(15) % of 100 = 625?</p> <p>(16) Find the principal plus the interest on \$450 for 1 yr. at 4%.
\$.....</p> <p>(17) Find the yearly tax on a \$25,000 house at 1.5¢ on the dollar if it is
taxed at $\frac{3}{5}$ its value. \$.....</p> <p>(18) Change \$20 to pesos at $12\frac{1}{2}$ pesos to the dollar. pesos.</p> <p>(19) How many days are there from June 1, 1965 to Mar. 1, 1966?
..... da.</p> <p>* (20) Estimate: $156 \times 234 =$</p> <p>(21) 1820 ft. = in.</p> <p>(22) Find the remainder when 89763 is divided by 5.</p> <p>(23) Solve: $2^x = \frac{1}{8}$. $x =$</p> <p>(24) Find the remainder when 818×78 is divided by 10.</p> <p>(25) How many elements are in the power set for $\{1, 2, 5\} \cup \{1, 2, 3\}$?
.....</p> | <p>(26) $1344 \div 16 =$</p> <p>(27) Which is heavier 16 lb. or 180 oz.?</p> <p>(28) $(3 \times 4) \div (3 \times 24) =$</p> <p>(29) Solve: $8x + 7 = -9$. $x =$</p> <p>* (30) Estimate: $962,387 \div 158 =$</p> <p>(31) Find the next term of 1, 8, 27, 64, 125,</p> <p>(32) Find the remainder: $[7^4 + (3 \times 7) - 5] \div 4$.</p> <p>(33) At $12\frac{1}{2}\%$ per lb., find the cost of 2000 lb. lime. \$.....</p> <p>(34) $318.4 \div 100 =$ (decimal).</p> <p>(35) $752 \div 80 =$ (decimal).</p> <p>(36) Find the largest prime divisor of 225.</p> <p>(37) Find the sum of the positive integral divisors of 9.</p> <p>(38) How many positive integral divisors does 28 have?</p> <p>(39) Find the least common multiple of 6, 36, 216.</p> <p>* (40) Estimate: $54 + 714 + 5 + 2322 =$</p> <p>(41) How many 18 lb. bags will weigh equally as 144 sixteen lb. bags?
.....</p> <p>(42) $19 \times 3\frac{1}{2} =$</p> <p>(43) $1001^2 =$</p> <p>(44) If $a/11$ and $b/11$ give remainders 3 and 3, respectively, find the
remainder for $ab/11$.</p> <p>(45) If x and y are integers such that $11x + 13y = 1$, find the smallest
possible positive value of y. $y =$</p> <p>(46) $14 \frac{1}{7}\% =$ (fraction).</p> <p>(47) $5 \times 12 \times 11 \times 15 =$</p> <p>(48) $18 \times 45 =$</p> <p>(49) Find the product of the three solutions of $x^3 - 7x^2 + 14x - 8 =$
0.</p> <p>* (50) Estimate: $413 + 213 + 527 =$</p> |
|--|--|

- (51) $8.7 - 3.05 =$
- (52) Find the cost per qt. if 24 pints cost \$75. ?
- (53) 12 mi. = rd.
- (54) Write 55 in Roman numerals.
- (55) $7/15 - 3/10 =$
- (56) Find Mike's age if it is three times what it was 4 yr. ago.
..... yr.
- (57) Write 24 in the base 9 system.
- (58) What is the limiting value of the sequence: $1\frac{1}{2}, 3/4, 1\frac{1}{8}, 15/16,$
 $1\frac{1}{32}, \dots ?$
- (59) $525 \times 36 =$
- * (60) If the number of pints of water a corn stalk uses per day under normal conditions is given by $p = \frac{1}{2}h - 2\frac{1}{2}$ (h is the height in ft.), estimate how many quarts a stalk 6 ft. high will use in 60 days.
..... qt.
- (61) $\{a, (a, b)\} \cup \{b, (a, b)\} = \{.....\}$.
- (62) Find the length of a tangent from P to a circle of center O and radius 3" if $PO = 5"$ in.
- (63) Find the side of a regular hexagon whose area is $6\sqrt{3}$ sq. in.
..... in.
- (64) Find the area of a square whose diagonal is 8 in. sq. in.
- (65) $\sqrt{2025} =$
- (66) If the hypotenuse of a right triangle is 25 in., and one leg is 7 in., the other leg is in.
- (67) $4^{1/2} =$
- (68) A line through the center of a circle bisects a chord of 8 in. which is 3 in. from the center. The radius is in.
- (69) A solid has 6 square faces, each with edge of 1". Its volume is cu. in.
- * (70) Estimate: $\pi (\pi - 1) =$
- (71) What is the probability that two heads and one tail will come up when three coins are flipped? (fraction).
- (72) $(70 + 3)(70 + 4) =$
- (73) Lines are drawn from a point P inside a 7-sided plane figure to the vertices. What is the minimum number of colors required to color the parts so that no adjacent parts are the same color, except at P.
- (74) Five men date five women. If no women are already selected, a certain four of the men can make how many sets of selections among the five women?
- (75) $(140 - 5)(130 + 5) =$
- (76) How many gallons of water must be added to 4 gal. of 10% solution to make an 8% solution? gal.
- (77) The ratio of the volumes of two similar cones is 64 to one. What is the ratio of their altitudes (greater than 1)?
- (78) $5(2 + 3 - 1) - (7 + 3 - 5) =$
- (79) What was the cost of the vacation if the expenses were: 7 nights in motels at \$9.50 ea.; 50 gal. gas at 32¢ per gal.; entertainment, \$15.00; and food, \$56.00. \$.....
- * (80) Estimate: $796 + 45 + 27 + 86 =$

The University of Texas Interscholastic League

Number Sense Test, Series AA-6

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

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|--|--|
| <p>(1) $135 + 65 - 18 + 36 =$</p> <p>(2) $5\frac{1}{2} \div 1\frac{1}{8} =$</p> <p>(3) $18 \frac{2}{11} \times 2200 =$</p> <p>(4) $2464 \div 44 =$</p> <p>(5) $2\frac{1}{2} + 1\frac{1}{8} + 3\frac{3}{4} =$</p> <p>(6) $127 - 88 =$</p> <p>(7) $12^3 - 11^3 =$</p> <p>(8) $18 + 56 + 34 + 27 =$</p> <p>(9) $67 \times 73 =$</p> <p>* (10) Estimate: $4^{10} =$</p> <p>(11) $106\frac{1}{4} \times 1600 =$</p> <p>(12) Find the greatest common divisor of 66, 84, 42.</p> <p>(13) Find the yearly tax on an \$18,000 house at 1.5¢ on the dollar if it is taxed at % of its value. \$</p> <p>(14) Change \$6 to pesos at $12\frac{1}{2}$ pesos to the dollar. pesos.</p> <p>(15) How many days are in the time from June 1, 1963 to May 1, 1964?</p> <p>..... da.</p> <p>(16) Find the principal which will yield \$20 in one year if the rate is 4%. \$</p> <p>(17) Write the number in figures: one billion, one thousand, one hundred.</p> <p>(18) 150% of 160 =</p> <p>(19) $37\frac{1}{2}\%$ = (fraction).</p> <p>* (20) Estimate: $827 \times 756 =$</p> <p>(21) Which is larger, $a = 3^2$ or $b = (\frac{1}{4})^{-2}$?</p> <p>(22) $(3 \times 4) \div (-1)^3 =$</p> <p>(23) Solve for x: $3x + 4 = 2x - 4$. x =</p> <p>(24) Solve for x: $2^{-x} = \frac{1}{2}$. x =</p> <p>(25) 28 cu. yd. = cu. ft.</p> | <p>(26) What is the remainder when 818×78 is divided by 9?</p> <p>(27) How many elements are in the power set for $\{1, 2, 3\} \cup \{1, 2, 4\}$?</p> <p>.....</p> <p>(28) $1513 \div 17 =$</p> <p>(29) What is the remainder when 897,848 is divided by 11?</p> <p>* (30) Estimate: $872,351 \div 729 =$</p> <p>(31) Find the largest prime divisor of 361.</p> <p>(32) Find the sum of the positive integral divisors of 27.</p> <p>(33) How many positive integral divisors does 84 have?</p> <p>(34) Find the least common multiple of 5, 35, 22.</p> <p>(35) $5 \div 1000 =$ (decimal).</p> <p>(36) $54.6 \div 16\%$ = (decimal).</p> <p>(37) Find the next term of 2, 3, 5, 7, 11,</p> <p>(38) Find the cost of 1920 cu. ft. of gas @ \$1.25 per 1000 cu. ft. \$</p> <p>.....</p> <p>(39) Find the remainder: $[22^3 + (4 \times 22) + 3] \div 7$.</p> <p>* (40) Estimate: $87.32 + 914 + 6289 + 2632 =$</p> <p>(41) If x and y are integers such that $7x - 9y = 1$, find the smallest possible positive value of y.</p> <p>(42) $145^2 =$</p> <p>(43) $16 \div 2\%$ =</p> <p>(44) The remainders for a/11 and b/11 are 5 and 4, respectively. Find the remainder for ab/11.</p> <p>(45) $17\frac{1}{2}\%$ = (fraction).</p> <p>(46) $8 \times 17 \times 5 \times 3 \times 2 =$</p> <p>(47) $16 \times 56 =$</p> <p>(48) If the two solutions of an equation are $x = \pm 1$, the equation is $x^2 =$</p> |
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- (49) If fifteen 4 lb. bags weigh equally as twenty bags of x lb., $x =$ lb.
- * (50) Estimate: How many $3'' \times 6''$ tiles are required to cover a $15' \times 15'$ floor?
- (51) Write 96 in Roman numerals:
- (52) Find the cost of 1 quart if 24 pints cost \$108.00. \$
- (53) $9.76 - 5.8 =$
- (54) 1 acre = sq. ft.
- (55) Find the smallest number greater than each number of: $1/2, 3/4, 7/8, 15/16, \dots$
- (56) Write 27 in the base 6 system.
- (57) $325 \times 96 =$
- (58) $2 \frac{1}{12} - \frac{5}{6} =$
- (59) What is Mary's age if she is 3 times as old as she was 8 yr. ago. yr.
- * (60) Estimate: If a person's wt. in pounds is given by the formula $W = h^3 - h$, h in ft., how heavy is a man 6' tall? lb.
- (61) What is the probability to hit 2 (total dots) when two dice are thrown? (fraction).
- (62) $12 [(3 \times 12) + 5] =$
- (63) A circle is drawn inside and not touching a regular octagon. The circle is divided into 8 parts by points which are joined to the vertices of the octagon by non-intersecting lines. How many colors are required to color the various parts formed so that adjacent parts have different colors, except at single points?
- (64) Five men date five women. What is the total number of ways in which the men and women may be paired?
- (65) $125 (118 + 7) =$
- (66) How many gallons of water must be added to 100 gal. of a 20% solution to make a 16% solution? gal.
- (67) The shortest sides of similar triangles are 3" and 4". What is the ratio of the areas? (less than 1).
- (68) $[(5 + 7) 3 - (2 - 4) 5] 8 =$
- (69) Find the total cost of the 3 hr. boating trip with expenses: 7 gal. gas @ 32¢ per gal; 1 qt. oil, 50¢; wheel grease, 50¢; trailer repair, \$2.00; depreciation, \$5.00. \$
- * (70) Estimate: $897 \times 692 \div 53 =$
- (71) $\sqrt{2601} =$
- (72) If the hypotenuse and a leg of a right triangle are 29" and 20", resp., the area is sq. in.
- (73) Find the perimeter of an equilateral triangle if the area is $64\sqrt{3}$ sq. in. in.
- (74) Find the diagonal of a square whose area is 18 sq. in. in.
- (75) $\{1, a\}, \{a, 1\}, \{b\} \cup \{(1, a), a, b\} = \{ \dots \}$.
- (76) The distance of P to the center O of a circle is 17" while the tangent from P is 8". Find the radius. in.
- (77) $(4)^{-1/2} =$
- (78) Two radii make an angle of 30° . What is the ratio of the area of the sector between them to that of the whole circle?
- (79) The bases of two equilateral triangles of side 1" are put together and a rhombus is formed. Its area is $\sqrt{3}$ multiplied by
- * (80) Estimate: $897 \times 1111 \div 329 =$

The University of Texas Interscholastic League

Number Sense Test, Series AA-7

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

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| <p>(1) $13 \times 13 =$</p> <p>(2) $87 + 96 + 32 =$</p> <p>(3) $357 \div 17 =$</p> <p>(4) $2\frac{1}{2} + 3\% + 4\frac{1}{4} =$</p> <p>(5) $18 \frac{2}{9} \times 180 =$</p> <p>(6) $147 - 69 =$</p> <p>(7) $12\frac{1}{2} \div 1\frac{1}{4} =$</p> <p>(8) $88 \times 92 - 8096 =$</p> <p>(9) $(8 \times 18) + (6 \times 9) =$</p> <p>* (10) Estimate: $3^{12} =$</p> <p>(11) Find the yearly tax on a \$35,000 house taxed at 2¢ on the dollar at $\frac{3}{5}$ of its value. \$.....</p> <p>(12) Change 18 pesos to dollars at $12\frac{1}{2}$ pesos to the dollar. \$.....</p> <p>(13) How many days are in the time from June 1, 1963 to Mar 15, 1965?
..... days..</p> <p>(14) $83\frac{1}{4}\%$ = (fraction).</p> <p>(15) Find the simple interest rate which will yield \$23.50 in $\frac{1}{2}$ year on \$1000.%</p> <p>(16) Write in figures, the number: one billion, eleven million, eleven thousand.</p> <p>(17) Find the greatest common divisor of 70, 105, 140.</p> <p>(18) $87\frac{1}{2}\%$ of = 168</p> <p>(19) $122 \frac{2}{9} \times 900 =$</p> <p>* (20) Estimate: 626×752</p> <p>(21) Solve for x: $3(1 - x) = 2(1 - x)$. x =</p> <p>(22) Which is larger, $a = 22 \times 38$ or $b = 23 \times 37$?</p> <p>(23) 120% lb. = oz.</p> <p>(24) Find x: $2^{-x} = \frac{1}{8}$. x =</p> <p>(25) $4^2 \div 2^{-8} =$</p> <p>(26) $1656 \div 18 =$</p> | <p>(27) What is the remainder when 818×78 is divided by 11?</p> <p>(28) How many elements are in the power set for $\{1, 2, 3, 4\} \cap \{4, 5\}$?
.....</p> <p>(29) What is the remainder when 897,848 is divided by 9?</p> <p>* (30) Estimate: $165,634 \div 18 =$</p> <p>(31) How many positive integral divisors does 80 have?</p> <p>(32) Find the largest prime divisor of 442.</p> <p>(33) Find the sum of the positive integral divisors of 81.</p> <p>(34) Find the least common multiple of 4, 10, 35.</p> <p>(35) At 16 $\frac{2}{3}$¢ per cu. yd. how many cu. yd. will \$2.50 buy?
..... cu. yd.</p> <p>(36) Find the next term: 1, 1, 2, 3, 5, 8, 13,</p> <p>(37) $\\$25.00 \div 125 =$ \$.....</p> <p>(38) $6 \frac{1}{8} =$ (decimal).</p> <p>(39) Find the remainder: $[16^3 + (3 \times 16^2) + 9] \div 6$.</p> <p>* (40) Estimate: $8 + 297 + 3142 + 2137 - 78 =$</p> <p>(41) Five 35 lb. bags have the same weight as how many 25 lb. bags?
.....</p> <p>(42) x and y are integers such that $7x - 17y = 1$. What is the smallest possible positive value of y?</p> <p>(43) $104^2 =$</p> <p>(44) $127 \times 3\frac{1}{2} =$</p> <p>(45) If a/9 and b/9 give remainders of 3 and 3, what is the remainder for ab/9?</p> <p>(46) The equation with solutions 1, 3, 5 is $x^3 - 9x^2 + 23x =$
.....</p> <p>(47) $11 \frac{1}{11}\%$ = (fraction).</p> <p>(48) $24 \times 48 =$</p> <p>(49) $11 \times 13 \times 15 \times 6 =$</p> <p>* (50) Estimate: The number of 3" \times 6" tiles required to cover a 13' \times 13' floor is</p> |
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- (51) Find the cost for 4 pints if 24 quarts cost \$150. \$.....
- (52) $87 - 5.62 =$
- (53) 1 Acre = sq. yd.
- (54) $2\frac{3}{8} - \frac{1}{4} =$
- (55) How old is Mildred if she is three times as old as she was 10 yr. ago?yr.
- (56) Write 111 in Roman numerals.
- (57) Write the smallest number greater than every number of: .16, .166, .1666,
- (58) Write 33 in the base 5 system.
- (59) $111 \frac{1}{9} \times 99 =$
- * (60) Estimate: If $x = 96$, $x^2 - 2x - 24 =$
- (61) $\sqrt[3]{4096} =$
- (62) Find the other leg if a hypotenuse and leg of a right triangle are, respectively, 53" and 45".in.
- (63) Find the perimeter of an equilateral triangle of area $49\sqrt{3}$ sq. in. in.
- (64) Find the diagonal of a square whose area is 72 sq in. in.
- (65) $\{(0, 1), 0, 1\} \cap \{0, 1, (0, 1)\} = \{.....\}$.
- (66) Two chords of a circle intersect so that the segments of one are 2" and 32" and one segment of the other is 4". Find the second segment of the other.in.
- (67) $(\frac{1}{4})^{3/2} =$
- (68) Find the volume of a cube of edge 11 in. cu. in.
- (69) Find the radius of the circumscribed circle of a regular hexagon whose area is $6\sqrt{3}$
- * (70) Estimate: $(818 + 212) (314 + 227) =$
- (71) What is the probability to hit 3 (total dots) when two dice are thrown?
- (72) $(4 - 3) (4^2 + 12 + 3^2) =$
- (73) What is the least number of colors required to color a map of the United States so that adjacent states will be different colors, except at single points?
- (74) John and Charlie may select their dates at random from 6 girls. How many ways may they select their dates on a given night if both date each night?
- (75) $(112 + 3) (120 - 5) =$
- (76) How many qts. must be added to 8 qts. of a $12\frac{1}{2}\%$ solution to make an $8\frac{1}{8}\%$ solution? qts.
- (77) A pint can is to be constructed of similar shape to a 1 gal. can of altitude 8". How tall must it be? in.
- (78) $8 [2 + 3 (5 + 2)] - 5 (6 + 2) =$
- (79) Find the total expense of a shopping tour: dress, \$15.75; slip, \$2.98; shoes, \$11.95. \$.....
- * (80) Estimate: $(829 \times 723) + 72,562 =$

The University of Texas Interscholastic League

Number Sense Test, Series AA-8

Contestant's Number.....

Contestant's Score.....

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Stop—Wait for Signal

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|---|--|
| <p>(1) $88 + 17 + 62 + 56 =$</p> <p>(2) $189 - 97 =$</p> <p>(3) $3\frac{1}{2} - 1\frac{2}{3} =$</p> <p>(4) $1\frac{1}{2} \times 1\frac{1}{3} =$ {</p> <p>(5) $8 \div 2\frac{1}{4} =$</p> <p>(6) $17 + 19 - 14 =$</p> <p>(7) $102 \div 17 =$</p> <p>(8) $12 \times 13 =$</p> <p>(9) $8\frac{1}{13} \times 6 =$</p> <p>* (10) Estimate: $8196 + 3124 + 6173 + 7212 =$</p> <p>(11) $3 [7 + 2 (5 - 6)] - 2 [7 + 2 (5 - 6)] =$</p> <p>(12) $5\frac{1}{8}\%$ = (fraction).</p> <p>(13) $1/7 =$ %.</p> <p>(14) $44\frac{4}{9}\%$ of 27 =</p> <p>(15) $2 [7 + 3 (5 + 4)] - 5 [8 - 2] =$</p> <p>(16) $1000 \div 37.5 =$</p> <p>(17) $115^2 =$</p> <p>(18) $18 \times 33 =$</p> <p>(19) $14 = 87\frac{1}{2}\%$ of what number?</p> <p>* (20) Estimate: $232^2 =$</p> <p>(21) Find the interest on \$1500 for 3 yr. at 5%. \$.....</p> <p>(22) At $12\frac{1}{2}$ pesos to the dollar, \$16 = pesos</p> <p>(23) How many seconds are in 3 hours? seconds.</p> <p>(24) Find the remainder when $27 \times 38 - 15 \times 6$ is divided by 9.
.....</p> <p>(25) Let $A = \{1, 2, 3\}$ and $B = \{2, 3, 4\}$. How many elements (a, b) with a in A and b in B are there?</p> <p>(26) $3775 \div 25 =$</p> <p>(27) Find $25^{-1/2}$.</p> | <p>(28) At 100 miles per hour, how many feet per second am I travelling?
..... ft. per sec.</p> <p>(29) Write the larger of $-\frac{1}{2}$, $-\frac{1}{3}$.</p> <p>* (30) Estimate: $\sqrt{104} =$</p> <p>(31) Write the largest value of x such that $x^2 - 5x + 6 = 0$.</p> <p>(32) Write the largest prime divisor of 323.</p> <p>(33) Find the sum of the positive integral divisors of $2^2 \times 3^2$.</p> <p>(34) Find the least common multiple of $2^2 \times 3^2 \times 5$ and $2^2 \times 3^4 \times 5$.</p> <p>(35) $600 \div 66\frac{2}{3} =$</p> <p>(36) A pair of shoes costing \$5.00 was listed at 180% of the cost and sold at a 10% discount. What did it sell for? \$.....</p> <p>(37) Find the next term: 1, 1, 2, 3, 5, 8, 13,</p> <p>(38) $13 \times 2 \times 7 \times 5 =$</p> <p>(39) If a two digit number has units digit u and tens digit t such that $u + t = 5$ and $u - t = 1$, the number is</p> <p>* (40) Estimate: $927 \times 864 =$</p> <p>(41) If r, s, and t are the three solutions of $x^3 + 3x^2 - 5x + 7 = 0$, find $rs + rt + st$.</p> <p>(42) What is the largest value of x such that 180 is the least common multiple of 18, 10, and 5x?</p> <p>(43) Write 232 in the base 6 system.</p> <p>(44) What is the smallest number greater than every number of the sequence .1, .11, .111, ... ?</p> <p>(45) Write 1967 in Roman numerals</p> <p>(46) If $G = 27B - 32$, find G when $B = 5$.</p> <p>(47) $14^2 - 11^2 =$</p> <p>(48) $12^3 - 6^3 =$</p> <p>(49) How many days are there from Jan. 1, 1968 to June 1, 1968?
..... days.</p> |
|---|--|

- * (50) Estimate: $962,576 \div 471 =$
- (51) $2\frac{1}{4} + 5\frac{2}{3} - 3\frac{1}{2} =$
- (52) How much money will amount to \$1165 in 3 yr. at $5\frac{1}{2}\%$ simple interest? \$.....
- (53) $5\frac{1}{2}$ mi. = rd.
- (54) The number of positive integral divisors of $2^2 \times 3^2 \times 5^3$ is
- (55) My gas bill was \$6.00 net plus 11% late charge. What was it?
- (56) If the cubic equation has solutions 2, 3, and 5, then the equation is $x^3 - 10x^2 + 31x =$
- (57) What is the probability to "throw" 7 with a pair of dice? (fraction).
- (58) In how many ways may the integers 1, 2, 3 be ordered along a line?
- (59) What is the area of the largest square that can be put in a circle of diameter 1"? sq. in.
- * (60) Estimate: $627 \times 1823 \div 56 =$
- (61) Two chords of a circle intersect the circle in opposite arcs of 20° and 30° . The smaller angle between them is $^\circ$.
- (62) A trapezoid has one base 7" and altitude 9" and area 72 sq. in. The other base is in.
- (63) $8 \{ 7 - 2 [5 + 6] \} - 4 \{ 6 + 3 (2 - 4) \} =$
- (64) $(8 + 9 - 5) (6 + 3 + 4 - 2) =$
- (65) If $x^{-3} = 8$, then $x =$
- (66) Find C so that the roots of $5x^2 - 10x + C = 0$ are equal.
- (67) A man paid $2\frac{1}{2}\text{¢}$ per mile on a trip of 2700 miles. His cost was \$.....
- (68) $26 \times 24 - 23 \times 24 =$
- (69) $(\frac{1}{8})^{-2/3} =$
- * (70) Estimate: $7/6 (16 \times 14 + 11 \times 12 + 12 \times 14 + 18 \times 22) =$
- (71) Find the yearly rainfall if the monthly falls are: 2.1", .1", 3.5", 2.9", 1.4", 4.3", 5.6", 3.1", 2.7", .7", 1.8", 5.0". in.
- (72) $2\frac{3}{4} \div 11 =$
- (73) $2 \times 9 + 6 \times 5 - 3 \times 8 =$
- (74) If $N = 812$, find the sum of the digits multiplied by their product.
- (75) $5\% =$ (fraction).
- (76) $[(8 \times 7) \div (2 \times 14)] 18 =$
- (77) The sum of the integers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 is
- (78) The product of the integers 1, 2, 3, 4, 5, 6, 7 is
- (79) $26 + 52 - 19 =$
- * (80) Estimate: $(82 + 96) (165 + 327) =$

