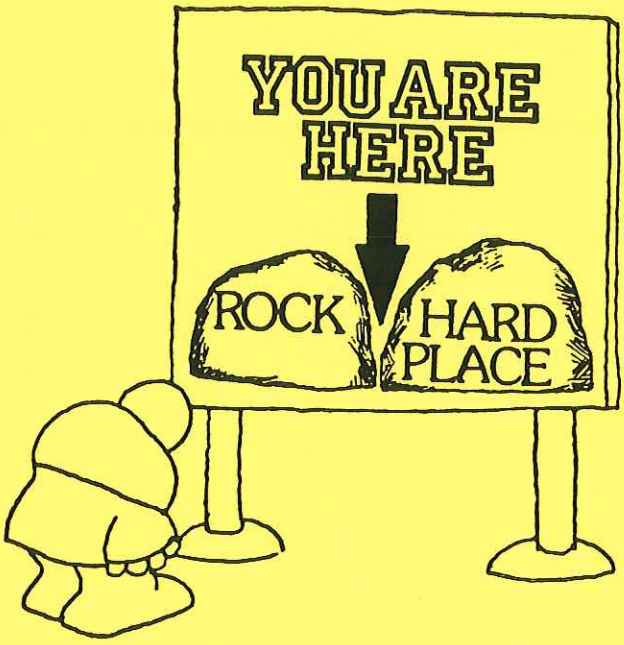
Friendship Junior High School
Sixth Grade Accelerated Math Program

Room 102A (Mr. Lavine)

1

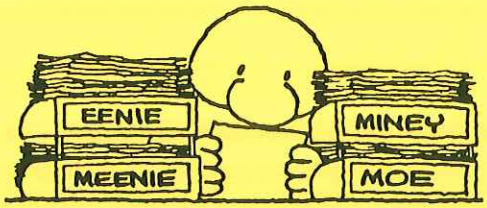


1st Quarter Units of Study

Whole Numbers
Fractions
Decimals
Proportions & Percentages

UNIT 1

Whole Numbers



1. PLACE VALUE

① 3,000
② 300,000
③ 3
④ 30
⑤ 20,000
⑥ 90
⑦ 0

⑧ Six hundred forty-three thousand, two hundred eighty-two

⑨ Nine million, fifty-four thousand, thirty-six

⑩ Twelve billion, five hundred thousand, twelve

⑪ Ninety-five million, thirteen thousand, forty-four

⑫ 3,215,056
⑬ 48,000,037
⑭ 12,000,508,020
⑮ 6,006,006

2. ROUNDING

① 58,396
② 58,400
③ 58,400
④ 58,000
⑤ 60,000
⑥ 100,000
⑦ 3,600
⑧ 3,599
⑨ 0
⑩ 4,000
⑪ 3,600
⑫ 780,000
⑬ 780,000
⑭ 800,000
⑮ 809,950
⑯ 810,000
⑰ 1,000,000
⑱ 810,000
⑲ 809,951
⑳ 810,000
㉑ 3,500,300
㉒ 3,500,000
㉓ 4,000,000
㉔ 1,999,990
㉕ 2,000,000
㉖ 0

3. EXPONENTS

① 25
② 49
③ 27
④ 8
⑤ 125
⑥ 16
⑦ 100
⑧ 100,000
⑨ 10,000,000
⑩ 4
⑪ 1
⑫ 1
⑬ 33
⑭ 9

4. RENAMING DIVISION

① $2\overline{)3}$ 3/2
② $5\overline{)7}$ 7/5
③ $3\overline{)8}$ 8/3
④ 5÷2 5/2
⑤ 7÷4 7/4
⑥ 2÷3 $3\overline{)2}$
⑦ 4÷9 $9\overline{)4}$

5. EXPANDING

1. $(4\times10^4)+(6\times10^3)+(2\times10^2)+(5\times10^1)+(3\times10^0)$
2. $(6\times10^3)+(3\times10^0)$
3. $(2\times10^5)+(5\times10^4)+(3\times10^1)+(4\times10^0)$
4. (6×10^3)
5. $(8\times10^5)+(3\times10^3)+(4\times10^1)$
6. $(2\times10^4)+(5\times10^3)+(3\times10^1)+(4\times10^0)$
7. (8×10^6)

6. OPERATIONS

1. 34,927
2. 389
3. 12,570
4. 5793
5. 14,595
6. 1152
7. 4,559,441
8. 37,068
9. 24,447
10. 525,000
11. $78\ 3/8$
12. $3942\ 22/25$
13. $211\ 17/270$
14. $300,115$
15. $52\ 1/3$
16. $106\ 20/49$
17. $102\ 5/6$

7. PRIMES / COMPOSITES

1. 11, 13, 17, 19
2. 30, 32, 33, 34, 35, 36, 38, 39, 40
3. 61, 67
4. 40, 42, 44, 45, 46, 48, 49, 50

8. PRIME FACTORIZATION

1. $2^4\times5$
2. $2^2\times3\times5$
3. $2^4\times5^2$
4. $3\times5^2\times7$
5. $2^3\times3^3$
6. 2×5^3
7. $2\times3\times5\times7$
8. 3^4

9. DIVISIBILITY

1. 2, 5, 10, 4
2. 5
3. 5, 3, 9
4. 2, 5, 10, 3, 4, 6
5. 2, 3, 4, 6
6. 2, 5, 10, 3, 4, 6, 9
7. 3
8. 2, 3, 4, 6
9. 5, 3, 9
10. 3
11. 2
12. none
13. 2, 5, 10, 3, 4, 6, 9
14. 3, 9
15. 2, 5, 10, 4

10. FACTORS

1. 1, 2, 3, 6, 9, 18
2. 1, 5, 25
3. 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
4. 1, 2, 4, 8, 16, 32, 64

11. GCF

1. 5
2. 9
3. 7
4. 9
5. 6

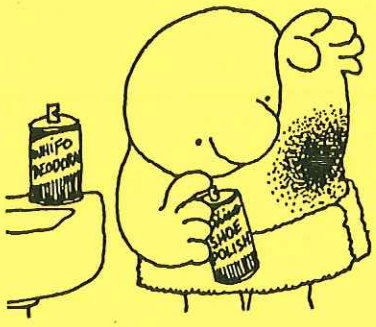
12. MULTIPLES

1. 7, 14, 21, 28, 35
2. 11, 22, 33, 44, 55
3. 8, 16, 24, 32, 40
4. 12, 24, 36, 48, 60

13. LCM

1. 24
2. 63
3. 42
4. 200
5. 75

14. REVIEW



1. 6000
2. 6,000,000
3. 60,000
4. 6
5. 60
6. Five million, eight hundred forty-three thousand, two hundred ten
7. Four thousand, eight hundred fifty-four
8. Two hundred ten thousand
9. Four hundred thirty-five thousand, one hundred
10. Two billion, one hundred
11. 584,370
12. 584,000
13. 584,400
14. 600,000
15. 4,899,950
16. 4,900,000
17. 4,900,000
18. 5,000,000
19. 4,900,000
20. 0
21. 8
22. 81
23. 36
24. 125
25. 32
26. $(2\times10^4)+(8\times10^2)+(3\times10^1)+(5\times10^0)$
27. $(7\times10^6)+(5\times10^4)+(4\times10^2)+(2\times10^0)$
28. $5\overline{)8}$ 8/5
29. $7\overline{)2}$ 2÷7
30. 4÷3 4/3
31. 17,313
32. 3,557,960
33. 29,510
34. 207 7/24
35. $2^4\times3^2$
36. 2^8
37. 3, 9
38. All
39. 1, 2, 3, 6, 7, 14, 21, 42
40. 1, 2, 5, 10, 25, 50
41. 5
42. 6
43. 13, 26, 39, 52, 65
44. 17, 34, 51, 68, 85
45. 36
46. 24
47. 2, 3, 5, 7, 11, 13, 17, 19, 23
48. 50, 51, 52, 54, 55, 56, 57, 58, 60

UNIT 2

Fractions

1. REDUCING

1. 1/3
2. 4/7
3. 2/3
4. 5/7
5. 3/5
6. 1/2
7. 3/5
8. 3/5
9. 4/5
10. 2/3

2. RENAMING

1. 11/4
2. 13/3
3. 62/5
4. 38/7
5. 13/2
6. 2 3/5
7. 9 1/2
8. 2 2/3
9. 1 3/4
10. 6 1/2

3. EQUIVALENCE

1. x=9
2. x=21
3. x=6
4. x=9
5. x=15
6. x=32
7. x=21
8. x=8

4. COMPARISONS

1. <
2. >
3. <
4. >
5. >
6. >
7. =
8. <

5. ADDITION

① $\frac{3}{5} \times \frac{3}{3} = \frac{9}{15}$

$+\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$

$\frac{19}{15} = 1\frac{4}{15}$

② $\frac{5}{8} \times \frac{1}{1} = \frac{5}{8}$

$+\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$

$\frac{9}{8} = 1\frac{1}{8}$

③ $\frac{4}{7} \times \frac{3}{3} = \frac{12}{21}$

$+\frac{2}{3} \times \frac{7}{7} = \frac{14}{21}$

$\frac{26}{21} = 1\frac{5}{21}$

④ $2\frac{1}{3} \times \frac{4}{4} = 2\frac{4}{12}$

$+5\frac{3}{4} \times \frac{3}{3} = 5\frac{9}{12}$

$7\frac{13}{12} = 8\frac{1}{12}$

⑤ $4\frac{1}{3} \times \frac{2}{2} = 4\frac{2}{6}$

$+2\frac{1}{2} \times \frac{3}{3} = 2\frac{3}{6}$

$6\frac{5}{6}$

⑥ $14\frac{1}{3} \times \frac{5}{5} = 14\frac{5}{15}$

$+5\frac{2}{5} \times \frac{3}{3} = 5\frac{6}{15}$

$19\frac{11}{15}$

⑦ $6\frac{1}{5} \times \frac{4}{4} = 6\frac{4}{20}$

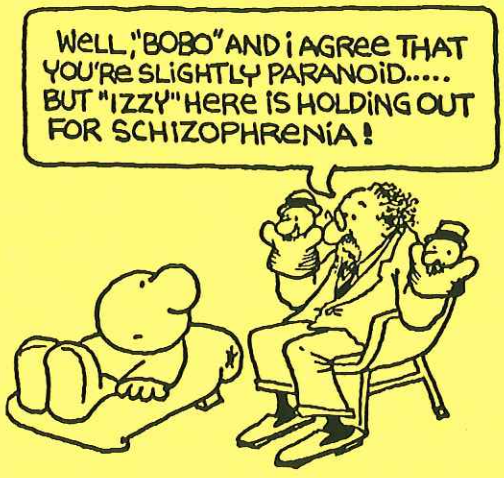
$+\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}$

$6\frac{19}{20}$

⑧ $\frac{2}{7} \times \frac{5}{5} = \frac{10}{35}$

$+3\frac{1}{5} \times \frac{7}{7} = 3\frac{7}{35}$

$3\frac{17}{35}$



⑨ 6

$+3\frac{3}{4}$

$9\frac{3}{4}$

⑩ $5\frac{2}{9} \times \frac{1}{1} = 5\frac{2}{9}$

$+6\frac{1}{3} \times \frac{3}{3} = 6\frac{3}{9}$

$11\frac{5}{9}$

6. SUBTRACTION

① $\frac{3}{5} \times \frac{3}{3} = \frac{9}{15}$

$-\frac{1}{3} \times \frac{5}{5} = \frac{5}{15}$

$\frac{4}{15}$

② $2\frac{1}{2} \times \frac{4}{4} = 2\frac{4}{8}$

$-\frac{3}{8} \times \frac{1}{1} = \frac{3}{8}$

$2\frac{1}{8}$

③ $4\frac{1}{3} \times \frac{4}{4} = 4\frac{4}{12}$

$-3\frac{1}{4} \times \frac{3}{3} = 3\frac{3}{12}$

$1\frac{1}{12}$

④ $6\frac{2}{3}$

-4

$2\frac{2}{3}$

⑤ $8 = 7\frac{3}{3}$

$-2\frac{1}{3} = 2\frac{1}{3}$

$5\frac{2}{3}$

⑥ $15\frac{2}{7} \times \frac{4}{4} = 15\frac{8}{28}$

$-3\frac{3}{4} \times \frac{7}{7} = 3\frac{21}{28}$

$11\frac{15}{28}$

⑦ $9\frac{1}{5} \times \frac{6}{6} = 9\frac{6}{30}$

$-7\frac{1}{6} \times \frac{5}{5} = 7\frac{5}{30}$

$2\frac{1}{30}$

⑧ $12 = 11\frac{5}{5}$

$-3\frac{2}{5} = 3\frac{2}{5}$

$8\frac{3}{5}$

⑨ $4\frac{2}{3} \times \frac{2}{2} = 4\frac{4}{6}$

$-1\frac{5}{6} \times \frac{1}{1} = 1\frac{5}{6}$

$2\frac{5}{6}$

⑩ $3\frac{2}{9}$

-1

$2\frac{2}{9}$

(11) $4\frac{2}{3} \times \frac{2}{2} = 3\frac{5}{6}$

$-2\frac{5}{6} \times \frac{1}{1} = 2\frac{5}{6}$

$1\frac{5}{6}$

(12) $8\frac{1}{3} \times \frac{7}{7} = 7\frac{28}{21}$

$-5\frac{4}{7} \times \frac{3}{3} = 5\frac{12}{21}$

$2\frac{16}{21}$

(13) $5\frac{3}{8}$

$-5\frac{3}{8}$

0

(14) $12 = 11\frac{3}{3}$

$-10\frac{2}{3} = 10\frac{2}{3}$

$1\frac{1}{3}$

(15) $6\frac{2}{3}$

-4

$2\frac{2}{3}$

7. MULTIPLICATION

(1) $\frac{\cancel{4}^{1}}{7} \times \frac{3}{\cancel{4}_{1}} = \frac{3}{7}$

(2) $\frac{\cancel{5}^{1}}{\cancel{8}4} \times \frac{\cancel{10}^{5}}{\cancel{15}3} = \frac{5}{12}$

(3) $2\frac{1}{2} \times \frac{3}{5}$

$\frac{\cancel{5}^{1}}{2} \times \frac{3}{\cancel{5}_{1}} = \frac{3}{2} = 1\frac{1}{2}$

(4) $\frac{\cancel{6}^{2}}{1} \times \frac{2}{\cancel{3}_{1}} = 4$

(5) $8\frac{1}{2} \times 2$

$\frac{17}{\cancel{2}_{1}} \times \frac{\cancel{2}^{1}}{1} = 17$

(6) $4\frac{2}{3} \times 1\frac{1}{2}$

$\frac{\cancel{14}^{7}}{\cancel{3}_{1}} \times \frac{\cancel{3}^{1}}{\cancel{2}_{1}} = 7$

(7) $\frac{\cancel{18}^{3}}{\cancel{25}_{5}} \times \frac{\cancel{10}^{2}}{\cancel{24}_{4}}$

$\frac{3}{5} \times \frac{\cancel{2}^{1}}{\cancel{4}_{2}} = \frac{3}{10}$

(8) $6 \times 2\frac{3}{4}$

$\frac{\cancel{6}^{3}}{1} \times \frac{11}{\cancel{4}_{2}} = \frac{33}{2}$

$16\frac{1}{2}$

(9) $\frac{\cancel{22}^{2}}{\cancel{35}_{7}} \times \frac{\cancel{25}^{5}}{\cancel{33}_{3}}$

$\frac{2}{7} \times \frac{5}{3} = \frac{10}{21}$

(10) $5 \times 3\frac{1}{3}$

$5 \times \frac{10}{3} = \frac{50}{3} = 16\frac{2}{3}$

(11) $\frac{\cancel{16}^{4}}{1} \times \frac{3}{\cancel{4}_{1}} = 12$

(12) $2\frac{3}{8} \times \frac{10}{38}$

$\frac{\cancel{19}^{1}}{\cancel{8}_{4}} \times \frac{\cancel{10}^{5}}{\cancel{38}_{2}} = \frac{5}{8}$

(13) $\frac{4}{5} \times 1\frac{3}{4}$

$\frac{\cancel{4}^{1}}{5} \times \frac{7}{\cancel{4}_{1}} = \frac{7}{5} = 1\frac{2}{5}$

(14) $2\frac{6}{7} \times \frac{3}{40}$

$\frac{\cancel{20}^{1}}{7} \times \frac{3}{\cancel{40}_{2}} = \frac{3}{14}$

(15) $\frac{7}{8} \times 1\frac{1}{3}$

$\frac{7}{\cancel{8}_{2}} \times \frac{\cancel{4}^{1}}{3} = \frac{7}{6} = 1\frac{1}{6}$

8. DIVISION

① $3 \div \frac{2}{5}$

$3 \times \frac{5}{2} = \frac{15}{2} = 7\frac{1}{2}$

② $4\frac{1}{2} \div \frac{2}{3}$

$\frac{9}{2} \div \frac{2}{3}$

$\frac{9}{2} \times \frac{3}{2} = \frac{27}{4} = 6\frac{3}{4}$

③ $\frac{15}{34} \div \frac{10}{17}$

$\frac{3\,15}{2\,34} \times \frac{1\,17}{2\,10} = \frac{3}{4}$

④ $6\frac{1}{3} \div \frac{38}{6}$

$\frac{19}{3} \div \frac{38}{6}$

$\frac{1\,19}{1\,3} \times \frac{2\,6}{2\,38} = \frac{2}{2} = 1$

⑤ $2\frac{2}{3} \div 6$

$\frac{8}{3} \div 6$

$\frac{4\,8}{3} \times \frac{1}{3\,6} = \frac{4}{9}$

⑥ $8 \div \frac{1}{3}$

$8 \times \frac{3}{1} = 24$

⑦ $2\frac{1}{2} \div 3\frac{1}{2}$

$\frac{5}{2} \div \frac{7}{2}$

$\frac{5}{1\,2} \times \frac{1\,2}{7} = \frac{5}{7}$

⑧ $\frac{2}{3} \div 1\frac{3}{4}$

$\frac{2}{3} \div \frac{7}{4}$

$\frac{2}{3} \times \frac{4}{7} = \frac{8}{21}$

⑨ $\frac{15}{22} \div \frac{3}{11}$

$\frac{5\,15}{2\,22} \times \frac{1\,11}{1\,3} = \frac{5}{2} = 2\frac{1}{2}$

⑩ $5 \div 2\frac{1}{2}$

$5 \div \frac{5}{2}$

$1\,5 \times \frac{2}{1\,5} = 2$

⑪ $6\frac{1}{2} \div \frac{1}{3}$

$\frac{13}{2} \div \frac{1}{3}$

$\frac{13}{2} \times \frac{3}{1} = \frac{39}{2} = 19\frac{1}{2}$

⑫ $\frac{3}{4} \div 9$

$\frac{1\,3}{4} \times \frac{1}{3\,9} = \frac{1}{12}$

⑬ $\frac{5}{8} \div 4\frac{1}{5}$

$\frac{5}{8} \div \frac{21}{5}$

$\frac{5}{8} \times \frac{5}{21} = \frac{25}{168}$

⑭ $6 \div 2\frac{2}{3}$

$6 \div \frac{8}{3}$

$3\,6 \times \frac{3}{4\,8} = \frac{9}{4} = 2\frac{1}{4}$

⑮ $\frac{4}{7} \div \frac{12}{14}$

$\frac{4}{7} \times \frac{14}{12} = \frac{2}{3}$

9. COMPLEX FRACTIONS

① $\frac{\left(\frac{3}{5}\right)}{\left(\frac{2}{3}\right)} = \frac{9}{10}$

$\frac{3}{5} \div \frac{2}{3}$

$\frac{3}{5} \times \frac{3}{2} = \frac{9}{10}$

② $\frac{\left(1\frac{3}{4}\right)}{\left(\frac{5}{6}\right)} = \frac{21}{10}$

$1\frac{3}{4} \div \frac{5}{6}$ $\quad \frac{7}{2\,4} \times \frac{3\,6}{5} = \frac{21}{10}$

③ $\frac{(12\frac{1}{2})}{(100)} = \frac{1}{8}$

$12\frac{1}{2} \div 100$

$\frac{25}{2} \times \frac{1}{100} = \frac{1}{8}$

④ $\frac{(33\frac{1}{3})}{(100)} = \frac{1}{3}$

$33\frac{1}{3} \div 100$

$\frac{100}{3} \times \frac{1}{100} = \frac{1}{3}$

⑤ $\frac{\left(2\frac{3}{4}\right)}{(3)} = \frac{\left(\frac{11}{8}\right)}{(3)} = \frac{11}{24}$

$2\frac{3}{4} \div 2$ $\qquad$ $\frac{11}{8} \div 3$

$\frac{11}{4} \times \frac{1}{2} = \frac{11}{8}$ $\qquad$ $\frac{11}{8} \times \frac{1}{3} = \frac{11}{24}$

⑥ $\frac{\left(1\frac{3}{4}\right)}{\left(\frac{1}{2}\right)} = \frac{\left(\frac{21}{8}\right)}{\left(\frac{1}{2}\right)} = \frac{21}{4} = 5\frac{1}{4}$

$1\frac{3}{4} \div \frac{2}{3}$ $\qquad$ $\frac{21}{8} \div \frac{1}{2}$

$\frac{7}{4} \times \frac{3}{2} = \frac{21}{8}$ $\qquad$ $\frac{21}{8} \times \frac{2}{1} = \frac{21}{4}$

⑦ $\frac{(4)}{\left(\frac{2}{3}\right)} = \frac{(4)}{\left(\frac{4}{9}\right)} = 9$

$\frac{2}{3} \div 1\frac{1}{2}$ $\qquad$ $4 \div \frac{4}{9}$

$\frac{2}{3} \div \frac{3}{2}$ $\qquad$ $\cancel{4} \times \frac{9}{\cancel{4}} = 9$

$\frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$

⑧ $\frac{\left(\frac{2}{3}\right)}{\left(\frac{3}{5}\right)} = \frac{\left(\frac{2}{3}\right)}{\left(\frac{3}{10}\right)} = \frac{20}{9} = 2\frac{2}{9}$

$\frac{3}{5} \div 2$ $\qquad$ $\frac{2}{3} \div \frac{3}{10}$

$\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$ $\qquad$ $\frac{2}{3} \times \frac{10}{3} = \frac{20}{9}$

⑨ $\frac{(2)}{\left(\frac{3}{4}\right)} = \frac{(2)}{\left(\frac{3}{2}\right)} = \frac{4}{3} = 1\frac{1}{3}$

$\frac{3}{4} \times \frac{2}{1} = \frac{3}{2}$ $\qquad$ $2 \div \frac{3}{2}$

$2 \times \frac{2}{3} = \frac{4}{3}$

⑩ $\frac{\left(1\frac{1}{3}\right)}{\left(\frac{2}{3}\right)} = \frac{\left(\frac{4}{9}\right)}{\left(\frac{2}{3}\right)} = \frac{2}{3}$

$1\frac{1}{3} \div 3$ $\qquad$ $\frac{4}{9} \div \frac{2}{3}$

$\frac{4}{3} \times \frac{1}{3} = \frac{4}{9}$ $\qquad$ $\frac{4}{9} \times \frac{3}{2} = \frac{2}{3}$

10. PROBLEM SOLVING

① $5\frac{1}{2} + 3\frac{3}{4} + 4\frac{3}{4} + 3\frac{1}{2} = 17\frac{1}{2}$ hours

② $81 \times 5/9 = 45$ rabbits are white

③ $\frac{2}{5} \div 3 = \frac{2}{15}$ of the cake

④ $30 \times \frac{4}{5} = 24$ sharpened pencils

⑤ $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$

$1 - \frac{7}{12} = \frac{5}{12}$ left to complete

⑥ $3\frac{1}{2} \times 2\frac{1}{2} = 8\frac{3}{4}$ dozen cookies

⑦ $18 \div 2\frac{1}{4} = 8$ parts

⑧ $12 \div \frac{2}{3} = 18$ sessions

⑨ $1\frac{1}{2} - \frac{3}{4} = \frac{3}{4}$ more

⑩ $1200 \times \frac{1}{5} = 240$ students

⑪ $15 \div 2\frac{1}{2} = 6$ movies

11. MORE PROBLEM SOLVING

① $24 \div 1/3 = 72$ periods

② $12 - 10\ 2/3 = 1\ 1/3$ pot holders

③ $3/4 \times 1/6 = 1/8$ of the basket

④ $12 \times 2/3 = 8$ girls

⑤ $5\frac{1}{3} - 3\frac{1}{2} = 1\frac{5}{6}$ more bags

$5\frac{1}{3} + 3\frac{1}{2} = 8\frac{5}{6}$ bags in all

⑥ $\frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$ of an acre

⑦ $3\frac{1}{4} + 2\frac{1}{2} = 5\frac{3}{4}$ hours in all

$3\frac{1}{4} - 2\frac{1}{2} = \frac{3}{4}$ more hrs. on Sun.

⑧ $2\frac{1}{3} \times 4\frac{1}{2} = 10\frac{1}{2}$ pages

⑨ $27 \div 3/4 = 36$ links

⑩ $1\frac{1}{2} + 3/4 = 2\ 1/4$

$2\frac{1}{2} > 2\ 1/4 \rightarrow$ YES, $2\frac{1}{2}$ yards will be enough

⑪ $102 \div 5\frac{2}{3} = 18$ people

12. REVIEW

① 5/6
② 1/3
③ 4/7
④ 8/9
⑤ 25/7
⑥ 5/2
⑦ 27/4
⑧ 1 1/2
⑨ 3
⑩ 3 1/2
⑪ $\frac{5}{8} = \frac{x}{24}$

$8x = 5 \times 24$

$8x = 120$

$x = 15$

(12) $\frac{6}{9} = \frac{x}{12}$

$9x = 6 \times 12$

$9x = 72$

$x = 8$

(13) $\frac{x}{30} = \frac{15}{18}$

$18x = 30 \times 15$

$18x = 450$

$x = 25$

(14) $<$

(15) $=$

(16) $>$

(17) $3\frac{1}{4} \times \frac{7}{7} = 3\frac{7}{28}$

$+2\frac{3}{7} \times \frac{4}{4} = 2\frac{12}{28}$

$5\frac{19}{28}$

(18) $6\frac{3}{8} \times \frac{3}{3} = 6\frac{9}{24}$

$-2\frac{2}{3} \times \frac{8}{8} = 2\frac{16}{24}$

$3\frac{17}{24}$

(19) $4 = 3\frac{5}{5}$

$-1\frac{3}{5} = 1\frac{3}{5}$

$2\frac{2}{5}$

(20) $\frac{3}{5} \times 9 = \frac{27}{5} = 5\frac{2}{5}$

(21) $2\frac{1}{3} \div 4$

$\frac{7}{3} \times \frac{1}{4} = \frac{7}{12}$

(22) $7\frac{1}{2} \times \frac{2}{25}$

$3\frac{15}{12} \times \frac{12}{5\,25} = \frac{3}{5}$

(23) $6 \div 2\frac{2}{3}$

$6 \div \frac{8}{3}$

$\frac{3}{6} \times \frac{3}{4\,8} = \frac{9}{4} = 2\frac{1}{4}$

(24) $\frac{4}{7} \times \frac{3}{3} = \frac{12}{21}$

$2\frac{1}{3} \times \frac{7}{7} = 2\frac{7}{21}$

$+\frac{5}{21} \times \frac{1}{1} = \frac{5}{21}$

$2\frac{24}{21} = 3\frac{1}{7}$

(25) $1\frac{3}{5} \times \frac{8}{8} = 1\frac{24}{40}$

$-\frac{5}{8} \times \frac{5}{5} = \frac{25}{40}$

$\frac{39}{40}$

(26) $\frac{12}{25} \times \frac{35}{36} = \frac{7}{15}$

(27) $4\frac{1}{5} \times \frac{4}{4} = 4\frac{4}{20}$

$-1\frac{3}{4} \times \frac{5}{5} = 1\frac{15}{20}$

$2\frac{9}{20}$

(28) $\frac{(62\frac{1}{2})}{(100)} = \frac{5}{8}$

$62\frac{1}{2} \div 100$

$\frac{5\,125}{2} \times \frac{1}{4\,100} = \frac{5}{8}$

(29) $\frac{(\frac{3}{4})}{(\frac{2}{3})} = \frac{9}{8} = 1\frac{1}{8}$

$\frac{3}{4} \div \frac{2}{3}$

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

(30) $\frac{(1\frac{1}{3})}{(3)} = \frac{(\frac{10}{3})}{(3)} = \frac{10}{9} = 1\frac{1}{9}$

$1\frac{1}{3} \div \frac{2}{5}$

$\frac{4}{3} \div \frac{2}{5}$

$\frac{4}{3} \times \frac{5}{2} = \frac{10}{3}$

$\frac{10}{3} \div 3$

$\frac{10}{3} \times \frac{1}{3} = \frac{10}{9}$

(31) $\frac{(66\frac{2}{3})}{(100)} = \frac{2}{3}$

$66\frac{2}{3} \div 100$

$\frac{200}{3} \times \frac{1}{100} = \frac{2}{3}$

(32) $\frac{(\frac{4}{5})}{(\frac{2}{1\frac{1}{2}})} = \frac{(\frac{4}{5})}{(\frac{4}{3})} = \frac{3}{5}$

$2 \div 1\frac{1}{2}$

$2 \div \frac{3}{2}$

$2 \times \frac{2}{3} = \frac{4}{3}$

$\frac{4}{5} \div \frac{4}{3}$

$\frac{\cancel{4}}{5} \times \frac{3}{\cancel{4}} = \frac{3}{5}$

(33) $\frac{(1\frac{2}{5})}{(\frac{1\frac{1}{3}}{\frac{1}{6}})} = \frac{(1\frac{2}{5})}{(8)} = \frac{7}{40}$

$1\frac{1}{3} \div \frac{1}{6}$

$\frac{4}{3} \div \frac{1}{6}$

$\frac{4}{\cancel{8}_1} \times \frac{\overset{2}{\cancel{16}}}{1} = 8$

$1\frac{2}{5} \div 8$

$\frac{7}{5} \div 8$

$\frac{7}{5} \times \frac{1}{8} = \frac{7}{40}$

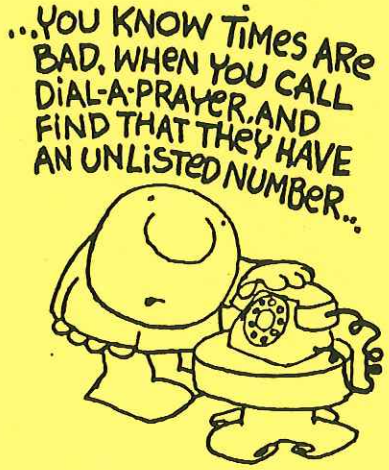
(34) $\frac{2}{3} \div 5 = \frac{2}{15}$ of the fence

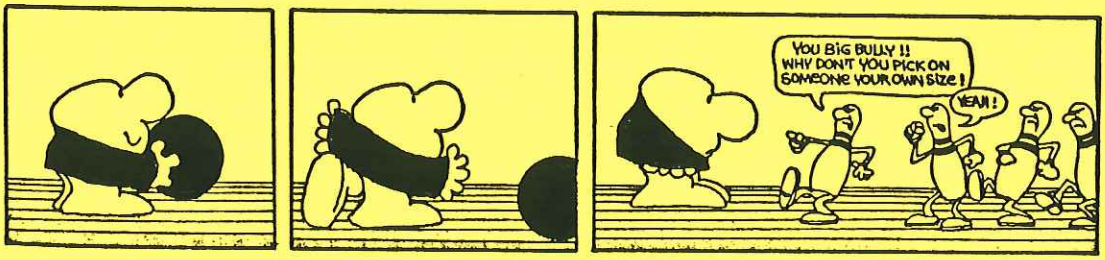
(35) $\frac{3}{5} \times \frac{2}{3} = \frac{2}{5}$ wore school colors

(36) $\frac{1}{5} + \frac{1}{4} = \frac{9}{20}$

$1 - \frac{9}{20} = \frac{11}{20}$ of the work is left for Sunday

(37) $2\frac{1}{2} \times 2\frac{3}{4} = 6\frac{7}{8}$ articles





UNIT 3

Decimals

1. WRITE IN WORDS

① Two thousand, one hundred, and thirty-five hundredths
② Four hundred, and twenty-seven thousandths
③ Eight, and forty-six ten thousandths
④ Twelve, and three hundred eight thousandths

2. WRITE THE DECIMAL

① 19.058
② 215.306
③ 8,035.0622
④ 49.00054
⑤ .0209

3. COMPARISONS

① .83 > .80
② .205 < .210
③ .530 > .525
④ 3.94 > 2.98
⑤ 1.10 > .94
⑥ .082 < .290

4. PLACE VALUE

① .3
② 8
③ .0009
④ .006
⑤ 0
⑥ 10
⑦ 200
⑧ .4
⑨ .005
⑩ 0
⑪ 90
⑫ .08

5. EXPANDING

① $(2\times10^1)+(4\times10^0)+(3\times1/10^1)+(5\times1/10^2)$
② $(8\times10^2)+(6\times1/10^2)+(4\times1/10^4)$
③ $(2\times1/10^1)+(3\times1/10^4)$
④ $(8\times10^0)+(1\times1/10^1)+(5\times1/10^2)+(2\times1/10^4)$
⑤ $(3\times10^3)+(2\times1/10^1)+(5\times1/10^2)$
⑥ $(8\times10^1)+(4\times10^0)+(3\times1/10^2)$
⑦ $(5\times1/10^3)+(4\times1/10^4)$
⑧ $(2\times10^4)+(5\times10^2)+(8\times1/10^2)$

6. ROUNDING

① 45
② 45.08
③ 0
④ 45.1
⑤ 45,083
⑥ .6
⑦ .604
⑧ 1
⑨ .6041
⑩ .60
⑪ 4
⑫ 3.90
⑬ 3.900
⑭ 3.9
⑮ 0
⑯ 400.92
⑰ 400.918
⑱ 400
⑲ 0
⑳ 401
㉑ 0
㉒ .400
㉓ .4
㉔ .40
㉕ .3999

7. ADDITION & SUBTRACTION

① 4.565
② 10.534
③ 5.263
④ 4.1334
⑤ 8.734
⑥ 224.056
⑦ 87.403
⑧ 2.25
⑨ 90.317
⑩ .583
⑪ .0471
⑫ 53.97
⑬ .504
⑭ .01
⑮ 9.659

8. MULTIPLY

① .14832
② .57
③ 14.46
④ .00112
⑤ 208
⑥ 16.25
⑦ 1.004
⑧ 4180
⑨ 1.4556
⑩ 7.597
⑪ .00486
⑫ 153.17
⑬ .0096
⑭ .00000009
⑮ .0378

9. DIVIDE

① $2.4 \div 1.5 = \boxed{1.6}$

1.5 ⟌ 2.4

```
    1.6
15 ⟌24.0
   15
   90
   90
```

② $3.45 \div .25 = \boxed{13.8}$

.25 ⟌ 3.45

```
    13.8
25 ⟌345.0
   25
   95
   75
   200
   200
```

③ $40 \div 1.25 = \boxed{32}$

1.25 ⟌ 40.00

```
     32.
125 ⟌4000.
    375
    250
    250
```

④ $9 \div .075 = \boxed{120}$

.075 ⟌ 9.000

```
     120.
75 ⟌9000.
    75
    150
    150
      00
      00
```

⑤ $2.55 \div 1.5 = \boxed{1.7}$

1.5 ⟌ 2.55

```
    1.7
15 ⟌25.5
   15
   105
   105
```

⑥ $.09 \div 2.4 = \boxed{.0375}$

2.4 ⟌ .09

```
     .0375
24 ⟌.9000
    72
    180
    168
    120
    120
```

⑦ $2.6 \div .03$

.03 ⟌ 2.60

```
     86.66...
3 ⟌260.00
  24
  20
  18
  20
  18
  20
  18
```

$\boxed{86.\overline{6}}$

⑧ $5 \div 2.4$

$\boxed{2.08\overline{3}}$

2.4 ⟌ 5.0

```
     2.0833
24 ⟌50.0000
   48
   20
   00
   200
   192
    80
    72
     80
     72
```

⑨ $5.4 \div .32$

$\boxed{16.875}$

.32 ⟌ 5.40

```
     16.875
32 ⟌540.000
   32
   220
   192
    280
    256
     240
     224
      160
      160
```

⑩ $600 \div 2.7$

$\boxed{222.\overline{2}}$

2.7 ⟌ 600.0

```
     222.2...
27 ⟌6000.0
   54
    60
    54
     60
     54
      60
      54
```

⑪ $.5 \div .55$

$\boxed{.\overline{90}}$

.55 ⟌ .50

```
     .9090...
55 ⟌50.0000
   495
    50
    00
    500
    495
     50
     00
```

⑫ Round to $1/10^2$

$8.5 \div 1.8 \approx$

$\boxed{4.72}$

1.8 ⟌ 8.5

```
     4.722...
18 ⟌85.000
   72
   130
   126
    40
    36
```

(13) Round to $1/10^2$

$280 \div 15 \approx \boxed{18.67}$

$$\begin{array}{r} 18.666\ldots \\ 15\overline{)280.000} \\ 15 \\ \hline 130 \\ 120 \\ \hline 100 \\ 90 \\ \hline 100 \\ 90 \\ \hline 100 \\ 90 \\ \hline \end{array}$$

(14) Round to $1/10$

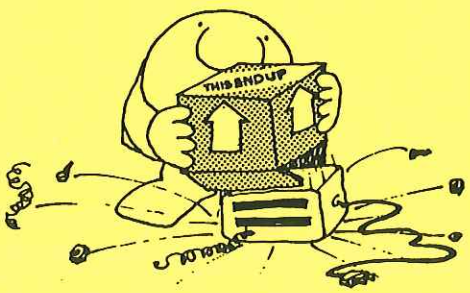
$5 \div 6 \approx \boxed{.8}$

$$\begin{array}{r} .83\ldots \\ 6\overline{)5.00} \\ 48 \\ \hline 20 \\ 18 \\ \hline \end{array}$$

(15) Round to $1/10$

$.07 \div .3 \approx \boxed{.2}$

$$\begin{array}{r} .23\ldots \\ 3\overline{).70} \\ 6 \\ \hline 10 \\ 9 \\ \hline \end{array}$$



10. POWERS OF TEN

(1) 46,300
(2) 37.5
(3) .426
(4) 3000
(5) 40
(6) 2.65174
(7) .0134
(8) 2.34
(9) 45,100
(10) .0118
(11) .0016
(12) 5430
(13) .543
(14) 1110
(15) 1

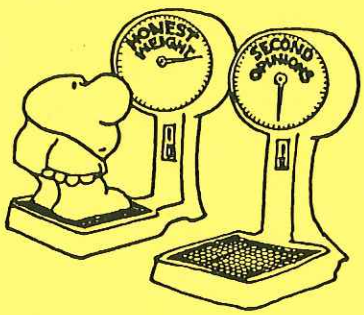
11. CONVERTING

(1) $.25 = \frac{25}{100} = \frac{1}{4}$
(2) $.1 = \frac{1}{10}$
(3) $.15 = \frac{15}{100} = 3/20$
(4) $.3 = 3/10$
(5) $.11 = 11/100$
(6) $2.5 = 2\ 5/10 = 2\ 1/2$
(7) $3.65 = 3\ 65/100 = 3\ 13/20$
(8) $.7 = 7/10$
(9) $.75 = 75/100 = 3/4$
(10) $4 = 4$
(11) $.025 = 25/1000 = 1/40$
(12) $.001 = 1/1000$
(13) $38.6 = 38\ 6/10 = 38\ 3/5$
(14) $.125 = 125/1000 = 1/8$
(15) $.05 = 5/100 = 1/20$
(16) $7/10 = .7$
(17) $3/100 = .03$
(18) $12/100 = .12$
(19) $4/5 = 4 \div 5 = .8$
(20) $1/3 = 1 \div 3 = .\overline{3}$
(21) $5/8 = 5 \div 8 = .625$
(22) $4/9 = 4 \div 9 = .\overline{4}$
(23) $5/6 = 5 \div 6 = .8\overline{3}$
(24) $1\frac{1}{2} = 1.5$
(25) $3\frac{2}{3} = 3\ (2 \div 3) \rightarrow 3.\overline{6}$
(26) $3/11 = .\overline{27}$
(27) $1/6 = 1 \div 6 \rightarrow 4,1\overline{6}$
(28) $8/9 = 8 \div 9 = .\overline{8}$
(29) $1/15 = 1 \div 15 = .0\overline{6}$
(30) $17/20 = 17 \div 20 = .85$

12. REVIEW

(1) Three thousand, five, and forty-one thousandths
(2) Four hundred, and one hundred three ten thousandths
(3) Six, and two thousand six ten thousandths
(4) 3,015.06
(5) 212.0536
(6) 7.00042
(7) $.74 > .70$
(8) $.500 > .483$
(9) $4.03 < 4.10$

(10) .004
(11) .06
(12) 0
(13) $(1 \times 10^1) + (6 \times 10^0) + (2 \times 1/10^1)$
(14) $(3 \times 10^2) + (2 \times 1/10^1) + (4 \times 1/10^3)$
(15) $(1 \times 10^0) + (5 \times 1/10^3) + (6 \times 1/10^4)$
(16) $(3 \times 10^3) + (4 \times 10^2) + (1 \times 1/10^2)$
(17) $(2 \times 1/10^1) + (8 \times 1/10^4)$
(18) $(2 \times 10^0) + (1 \times 1/10^1) + (9 \times 1/10^5)$
(19) 86
(20) 100
(21) 86.0
(22) 85.998
(23) 90
(24) 86.00
(25) 37.49
(26) .415
(27) 1.66
(28) 49.988
(29) 7.245
(30) 37.5
(31) .0013
(32) $1.\overline{6}$
(33) 2.9
(34) 5680
(35) .000015
(36) 4.3
(37) .1251



(38) .35 = 35/100
7/20

(39) 2.4 = $2\ 4/10$
$2\ 2/5$

(40) 7/9 = $7 \div 9$
$.\overline{7}$

(41) $1\ 4/5$ = $1\ \ 4 \div 5$
1.8

UNIT 4

Proportions & Percentages

1. PROPORTIONS

(1) $10n = 40$
$(10n)(1/10) = (40)(1/10)$ $\quad n = 4$

(2) $3n = 132$
$(3n)(1/3) = (132)(1/3)$ $\quad n = 44$

(3) $15n = 180$
$(15n)(1/15) = (180)(1/15)$ $\quad n = 12$

(4) $5n = 14$
$(5n)(1/5) = (14)(1/5)$ $\quad n = 14/5$ or $2\ 4/5$

(5) $15n = 33$
$(15n)(1/15) = (33)(1/15)$ $\quad n = 1/5$ or $2\ 1/5$

(6) $4n = 54$
$(4n)(1/4) = (54)(1/4)$ $\quad n = 27/2$ or $13\ 1/2$

(7) $n = 15$

(8) $7n = 36$
$(7n)(1/7) = (36)(1/7)$
$n = \frac{36}{7}$ or $5\frac{1}{7}$

2. PERCENTAGES

① part / whole $\frac{5}{20} = \frac{n}{100}$

$n = 25$

25 %

② part / whole $\frac{n}{50} = \frac{8}{100}$

$n = 4$

③ part / whole $\frac{8}{n} = \frac{40}{100}$

$n = 20$

④ part / whole $\frac{n}{12} = \frac{15}{100}$

$n = 1.8$

⑤ part / whole $\frac{14}{28} = \frac{n}{100}$

$n = 50$

50 %

⑥ part / whole $\frac{12}{n} = \frac{20}{100}$

$n = 60$

⑦ part / whole $\frac{6}{24} = \frac{n}{100}$

$n = 25$

25 %

⑧ part / whole $\frac{9}{n} = \frac{200}{100}$

$n = 4.5$

⑨ part / whole $\frac{n}{21} = \frac{300}{100}$

$n = 63$

⑩ part / whole $\frac{18}{45} = \frac{n}{100}$

$n = 40$

40 %

⑪ part / whole $\frac{36}{n} = \frac{75}{100}$

$n = 48$

⑫ part / whole $\frac{n}{40} = \frac{25}{100}$

$n = 10$

⑬ part / whole $\frac{15}{75} = \frac{n}{100}$

$n = 20$

20 %

⑭ part / whole $\frac{1.5}{n} = \frac{20}{100}$

$n = 7.5$

⑮ part / whole $\frac{12}{8} = \frac{n}{100}$

150 %

⑯ part / whole $\frac{6.3}{n} = \frac{2.25}{100}$

$n = 280$

⑰ part / whole $\frac{n}{250} = \frac{.05}{100}$

$n = .125$

⑱ part / whole $\frac{n}{45} = \frac{5}{100}$

$n = 2.25$

⑲ part / whole $\frac{12}{n} = \frac{40}{100}$

$n = 30$

⑳ part / whole $\frac{n}{300} = \frac{15}{100}$

$n = 45$

㉑ part / whole $\frac{15}{n} = \frac{6}{100}$

$n = 250$

㉒ part / whole $\frac{5.2}{n} = \frac{8}{100}$

$n = 65$

㉓ part / whole $\frac{n}{80} = \frac{5.5}{100}$

$n = 4.4$

㉔ part / whole $\frac{6}{75} = \frac{n}{100}$

$n = 8$

8 %

(25) part / whole $\frac{n}{90} = \frac{12}{100}$ $n = 10.8$

(26) part / whole $\frac{4}{25} = \frac{n}{100}$ $n = 16$ 16%

(27) part / whole $\frac{15}{12} = \frac{n}{100}$ $n = 125$ 125%

3. PROBLEM SOLVING

(1) color TVs / Total TVs $\frac{12}{20} = \frac{n}{100}$ 60% color TVs

(2) white / Total shirts $\frac{n}{50} = \frac{30}{100}$ 15 white shirts

(3) $ for food / Total income $\frac{50}{n} = \frac{20}{100}$ $250 income

(4) games won / games played $\frac{n}{25} = \frac{80}{100}$ 20 won 5 lost

(5) voted for Joan / Total votes $\frac{360}{n} = \frac{60}{100}$ 600 total votes

(6) Seats filled / Total seats $\frac{90}{120} = \frac{n}{100}$ 75% filled

(7) Sold out / Total flavors $\frac{3}{30} = \frac{n}{100}$ 90% available

$n = 10$ $100 - 10 = 90$

(8) Answered correctly / Total questions $\frac{16}{n} = \frac{80}{100}$

$n = 20$ $20 - 16 = 4$

4 answered incorrectly

(9) Voted / Total citizens $\frac{n}{300} = \frac{85}{100}$

$n = 255$ $300 - 255 = 45$

45 did not vote

(10) night shift / Total workers $\frac{125}{n} = \frac{20}{100}$

$n = 625$ $625 - 125 = 500$

500 on the day shift

(11) Trees cut / Total trees $\frac{14}{n} = \frac{56}{100}$

$n = 25$ 25 total trees

(12) Absent / Total students $\frac{n}{30} = \frac{10}{100}$

$n = 3$ $30 - 3 = 27$

27 present

(13) On sale / Total items $\frac{225}{n} = \frac{30}{100}$

$n = 750$ 750 total items

(14) Dented cans / Total cans $\frac{6}{24} = \frac{n}{100}$

$n = 25$ $100 - 25 = 75$

75% not dented

(15) Absent / Total enrollment $\frac{26}{n} = \frac{5}{100}$

$n = 520$ 520 total enrollment

(16) With zippers / Total coats $\frac{n}{150} = \frac{60}{100}$

$n = 90$ $150 - 90 = 60$

60 do not have zippers

(17) Sold / Total tickets $\frac{27}{n} = \frac{90}{100}$

$n = 30$ $30 - 27 = 3$

3 tickets left

(18) With glasses / Total students $\frac{12}{30} = \frac{n}{100}$

$n = 40$ 40% wear glasses

(19) Empty seats / Total seats $\frac{n}{550} = \frac{64}{100}$

$n = 352$ $550 - 352 = 198$

198 in the theatre

(20) Games won / Games played $\frac{16}{n} = \frac{80}{100}$

$n = 20$ $20 - 16 = 4$

4 games lost

(21) Empty seats / Capacity $\frac{n}{800} = \frac{37.5}{100}$

$n = 300$ $800 - 300 = 500$

500 in the auditorium

4. RATE OF DISCOUNT

(1) Discount / Reg. price $\frac{n}{8.40} = \frac{15}{100}$

$n = 1.26$ $1.26 discount

(2) Discount / Reg. price $\frac{n}{22.50} = \frac{33\frac{1}{3}}{100} = \frac{1}{3}$

$n = 7.50$ $22.50 - 7.50 = 15$

$15 selling price

(3) Selling price / Orig. price $\frac{156}{195} = \frac{n}{100}$

$n = 80$ $100 - 80 = 20$

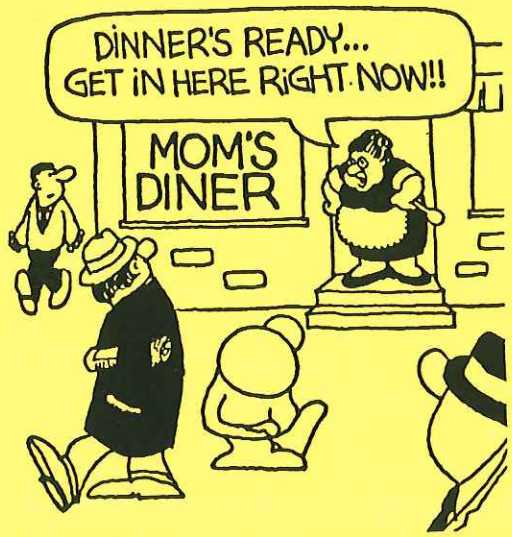
20% discount

(4) Discount / Reg. price $\frac{4}{n} = \frac{12.5}{100}$

$n = 32$ $32 reg. price

(5) Discount / Reg. price $\frac{n}{39.86} = \frac{15}{100}$

$n = 5.979$ $5.98 discount



⑥ Discount / Reg. price $\frac{n}{2715} = \frac{30}{100}$

$n = 814.5$ $2715 - 814.5 = 1900.5$

$1900.50 Selling price

⑦ Selling price / Reg. price $\frac{40}{50} = \frac{n}{100}$

$n = 80$ $100 - 80 = 20$

20% discount

⑧ Selling price / Reg. price $\frac{125}{187.50} = \frac{n}{100}$

$n = 66.\overline{6}$ $100 - 66.\overline{6} = 33.\overline{3}$

$33\frac{1}{3}$% discount

⑨ Discount / Reg. price $\frac{n}{998} = \frac{40}{100}$

$n = 399.2$ $998 - 399.2 = 598.8$

$598.80 selling price

⑩ Discount / Reg. price $\frac{n}{65} = \frac{20}{100}$

$n = 13$ $65 - 13 = 52$

$52 selling price

⑪ Selling price / Reg. price $\frac{20}{24} = \frac{n}{100}$

$n = 83.\overline{3}$ $100 - 83.\overline{3} = 16.\overline{6}$

$16\frac{2}{3}$% discount

⑫ Discount / Org. price $\frac{n}{395} = \frac{15}{100}$

$n = 59.25$ $59.25 discount

⑬ Discount / Reg. price $\frac{n}{80} = \frac{15}{100}$

$n = 12$ $12 discount

⑭ Discount / Reg. price $\frac{n}{99} = \frac{40}{100}$

$n = 39.6$ $99 - 39.6 = 59.4$

$59.40 selling price

⑮ Discount / Reg. price $\frac{n}{3.98} = \frac{10}{100}$

$n = .398$ $3.98 - .40 = 3.58$

$3.58 selling price

⑯ Discount / Reg. price $\frac{n}{4.25} = \frac{20}{100}$

$n = .85$ $.85 discount

⑰ Selling price / Reg. price $\frac{8.10}{10.80} = \frac{n}{100}$

$n = 75$ $100 - 75 = 25$

25% discount

⑱ Selling price / Reg. price $\frac{198}{297} = \frac{n}{100}$

$n = 66.\overline{6}$ $100 - 66.\overline{6} = 33.\overline{3}$

$33\frac{1}{3}$% discount

⑲ Discount / Reg. price $\frac{n}{165} = \frac{15}{100}$

$n = 24.75$ $165 - 24.75 = 140.25$

$140.25 selling price

(20) Selling pr. $\frac{14}{20} = \frac{n}{100}$
Reg. pr.

$n = 70 \quad 100 - 70 = 30$
30 % discount

(21) Discount $\frac{n}{675} = \frac{33\frac{1}{3}}{100}$
Reg. pr.

$\frac{n}{675} = \frac{1}{3}$

$225 discount

5. EQUIVALENCE

	Frac.	Dec.	Percent
(1)	(5/8)	.625	62.5% $62\frac{1}{2}$%
(2)	4/5	(.8)	80 %
(3)	7/20	.35	(35 %)
(4)	(4/9)	$.\overline{4}$	$44.\overline{4}$% $44\frac{4}{9}$%
(5)	3/50	(.06)	6%
(6)	$3\frac{2}{5}$	3.4	(340 %)
(7)	(5/6)	$.8\overline{3}$	$83.\overline{3}$% $83\frac{1}{3}$%
(8)	7/8	(.875)	87.5% $87\frac{1}{2}$%
(9)	1/6	$.1\overline{6}$	($16.\overline{6}$ %) $16\frac{2}{3}$%
(10)	(7/11)	$.\overline{63}$	$63.\overline{63}$% $63\frac{7}{11}$%
(11)	1/500	(.002)	.2% $\frac{1}{5}$ %
(12)	1/20	.05	(5 %)
(13)	(1/4)	.25	25 %
(14)	3/11	($.\overline{27}$)	$27.\overline{27}$% $27\frac{3}{11}$%
(15)	1/8	.125	($12\frac{1}{2}$%) 12.5%
(16)	(7/8)	.875	87.5% $87\frac{1}{2}$%

	Frac.	Dec.	Percent
(17)	11/40	(.275)	27.5% $27\frac{1}{2}$%
(18)	3/25	.12	(12 %)
(19)	(5/11)	$.\overline{45}$	$45.\overline{45}$% $45\frac{5}{11}$%
(20)	5/6	$.8\overline{3}$	($83.\overline{3}$%) $83\frac{1}{3}$%
(21)	3/2500	(.0012)	.12% 3/25 %
(22)	3/400	.0075	(3/4 %) .75%
(23)	($2\frac{1}{3}$)	$2.\overline{3}$	$233.\overline{3}$% $233\frac{1}{3}$%
(24)	$6\frac{1}{10}$	(6.1)	610 %
(25)	4/9	($.\overline{4}$)	$44.\overline{4}$% $44\frac{4}{9}$%
(26)	6 1/4 % = 1/16		
(27)	2.5 = 250 %		
(28)	5/12 = $41.\overline{6}$ %		$41\frac{2}{3}$ %

6. REPEATING DECIMALS

(1) $x = .\overline{7}$

$10x = 7.\overline{7}$
$x = .\overline{7}$
$9x = 7$
$x = 7/9$

(2) $x = .\overline{05}$

$100x = 5.\overline{05}$
$x = .\overline{05}$
$99x = 5$
$x = 5/99$

(3) $x = .\overline{21}$

$100x = 21.\overline{21}$
$x = .\overline{21}$
$99x = 21$
$x = 21/99 = 7/33$

(4) $x = .\overline{575}$

$1000x = 575.\overline{575}$
$x = .\overline{575}$
$999x = 575$
$x = 575/999$

(5) $x = .\overline{03}$

$100x = 3.\overline{03}$
$x = .\overline{03}$
$99x = 3$
$x = 3/99$
$x = 1/33$

⑥ $x = .2\overline{1}$

$10x = 2.\overline{1}$

$100x = 21.\overline{1}$

$10x = 2.\overline{1}$

$90x = 19$

$x = 19/90$

⑦ $x = .0\overline{45}$

$10x = .\overline{45}$

$1000x = 45.\overline{45}$

$10x = \quad .\overline{45}$

$990x = 45$

$x = 45/990$

$x = 1/22$

⑧ $x = .0\overline{3}$

$10x = .\overline{3}$

$100x = 3.\overline{3}$

$10x = \quad .\overline{3}$

$90x = 3$

$x = 3/90$

$x = 1/30$

⑨ $x = .\overline{25}$

$100x = 25.\overline{25}$

$x = \quad .\overline{25}$

$99x = 25$

$x = 25/99$

⑩ $x = .00\overline{5}$

$100x = .\overline{5}$

$1000x = 5.\overline{5}$

$100x = \quad .\overline{5}$

$900x = 5$

$x = 5/900$

$x = 1/180$

⑪ $x = .\overline{36}$

$100x = 36.\overline{36}$

$x = \quad .\overline{36}$

$99x = 36$

$x = 36/99$

$x = 4/11$

⑫ $x = .11\overline{2}$

$100x = 11.\overline{2}$

$1000x = 112.\overline{2}$

$100x = 11.\overline{2}$

$900x = 101$

$x = 101/900$

⑬ $x = .1\overline{05}$

$10x = 1.\overline{05}$

$1000x = 105.\overline{05}$

$10x = \quad 1.\overline{05}$

$990x = 104$

$x = 52/495$

⑭ $x = .3\overline{4}$ $10x = 3.\overline{4}$

$100x = 34.\overline{4}$

$10x = \quad 3.\overline{4}$

$90x = 31$ $x = 31/90$

⑮ $x = .0\overline{25}$ $10x = .\overline{25}$

$1000x = 25.\overline{25}$

$10x = \quad .\overline{25}$

$990x = 25$

$x = 25/990$ $x = 5/198$

7. REVIEW

① $12x = 180$ $x = 15$

② part $\frac{3}{n} = \frac{20}{100}$

whole

$n = 15$

③ part $\frac{25}{40} = \frac{n}{100}$

whole

$n = 62.5$ 62.5%

④ part $\frac{n}{60} = \frac{8}{100}$

whole

$n = 4.8$

⑤ part $\frac{5}{9} = \frac{n}{100}$

whole

$n = 55.\overline{5}$ $55.\overline{5}$ %

⑥ correct $\frac{n}{60} = \frac{75}{100}$

questions

$n = 45$ $60 - 45 = 15$ missed

⑦ boys $\frac{6}{n} = \frac{66\frac{2}{3}}{100} = \frac{2}{3}$

children

$n = 9$ 9 children

(8) not in class $\frac{12}{36} = \frac{n}{100}$
total students
$n = 33.\overline{3}$ $100 - 33.\overline{3} = 66.\overline{6}$
$66\frac{2}{3}\%$ in class

(9) Discount $\frac{5}{n} = \frac{10}{100}$
Reg. price
$n = 50$ $50 - 5 = 45$
\$45 selling price

(10) Discount $\frac{n}{12} = \frac{8}{100}$
Reg. price
$n = .96$ \$.96 discount

(11) Selling pr. $\frac{10.50}{12} = \frac{n}{100}$
Reg. pr.
$n = 87.5$ $100 - 87.5 = 12.5$
12.5% discount

	Frac.	Dec.	Percent
(12)	(4/5)	.8	80%
(13)	1/6	$(.1\overline{6})$	$16.\overline{6}\%$ $16\frac{2}{3}\%$
(14)	3/50	.06	(6%)
(15)	3/8	(.375)	37.5% $37\frac{1}{2}\%$
(16)	(3/11)	$.\overline{27}$	$27.\overline{27}\%$ $27\frac{3}{11}\%$

(17) $\frac{1}{2}\% = .5\% = .005 = 1/200$

(18) $5/8 = .625 = 62.5\%$

(19) $x = .\overline{25}$
$100x = 25.\overline{25}$
$x = .\overline{25}$
$99x = 25$
$x = 25/99$

(20) $x = .0\overline{8}$ $10x = .\overline{8}$
$100x = 8.\overline{8}$
$10x = .\overline{8}$
$90x = 8$
$x = 8/90 = 4/45$

QUARTER 1

Cumulative Review

REVIEW #1

(1) .005
(2) 0
(3) 58,000
(4) 58,439.964
(5) 100,000
(6) 58,439.96
(7) 58,440.0
(8) 58,440
(9) 125
(10) 1
(11) 10,000
(12) 27
(13) $(3 \times 10^4) + (5 \times 10^1) + (4 \times 1/10^2)$
(14) $(5 \times 10^4) + (8 \times 10^2) + (3 \times 1/10^3)$
(15) 7/3 $7 \div 3$
(16) $5\overline{)4}$ $4 \div 5$
(17) 17, 19, 23, 29
(18) 30, 32, 33, 34, 35, 36, 38, 39, 40
(19) $2^3 \times 5 \times 7$
(20) $2^4 \times 3 \times 5^2$
(21) 1, 2, 4, 7, 14, 28
(22) 18, 36, 54, 72, 90
(23) GCF = 15
(24) LCM = 90

(25) $21n = 210$
$n = 10$

(26) $12n = 120$
$n = 10$

(27) $2\frac{1}{3}$

(28) $1\frac{1}{2}$

(29) $17/5$

(30) $16/3$

(31) $>$

(32) $>$

(33) $4\frac{5}{18}$

(34) $8\frac{9}{35}$

(35) $5\frac{2}{5}$

(36) $1\frac{11}{14}$

(37) $2/5$

(38) 27

(39) $1\frac{1}{11}$

(40) 2

(41) $1\frac{4}{5}$

(42) 10

(43) Forty-six thousand, seventeen, and fifty-three thousandths

(44) Two hundred eight thousand, forty, and thirty-seven hundredths

(45) $>$

(46) $>$

(47) 2.904

(48) 3.49

(49) .0182

(50) .00342

(51) .056

(52) $1.3\overline{8}$

(53) 11.67

(54) .83

(55) .0365

(56) 3740

(57) $2\frac{3}{10}$

(58) $1/6$

(59) $77.\overline{7}\%$

(60) 275%

(61) 4.5%

(62) 12.5%

(63) .375

(64) $.\overline{36}$

(65) $7/30$

(66) $5/33$

(67) 5, 3

(68) 2, 5, 10, 3, 4, 6

(69) 9 not correct

(70) 280 books

(71) 17

(72) 375

(73) $72.\overline{72}\%$

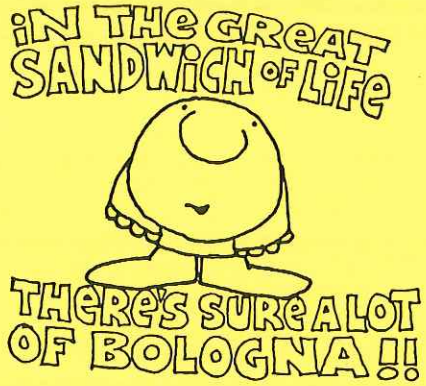
(74) 1.8

(75) 21 righties

(76) $2/5$ left

(77) \$11.04

(78) 25% discount



REVIEW #2

(1) 80,000

(2) .07

(3) 700

(4) 684.80

(5) 684.799

(6) 1000

(7) 685

(8) 684.8

(9) 243

(10) 1

(11) 100,000

(12) 64

(13) $(5 \times 10^2) + (7 \times 10^1) + (6 \times 1/10^1) + (3 \times 1/10^2) + (4 \times 1/10^3)$

(14) $(9 \times 10^3) + (9 \times 1/10^3)$

(15) $7\overline{)4}$ $4 \div 7$

(16) $5/9$ $9\overline{)5}$

(17) 7, 11, 13, 17

(18) 20, 21, 22, 24, 25, 26, 27, 28, 30

(19) $2^2 \times 5^3$

(20) $2^4 \times 3^2 \times 5$

(21) 1, 2, 3, 5, 6, 10, 15, 30

(22) 7, 14, 21, 28, 35

(23) 6

(24) 36

(25) $n = 8$

(26) $n = 48$

(27) 3

(28) $4\frac{1}{2}$

(29) $37/7$

(30) $25/6$

(31) $<$
(32) $>$
(33) $7\frac{9}{40}$
(34) $7\frac{1}{12}$
(35) $2\frac{7}{9}$
(36) $1\frac{9}{10}$
(37) 22
(38) $3\frac{1}{2}$
(39) $\frac{2}{9}$
(40) $\frac{2}{5}$
(41) $\frac{1}{27}$
(42) 6

(43) Five million, three thousand, fourteen, and sixteen ten thousandths

(44) Two million, one hundred thousand, fifty-four, and five thousandths

(45) $<$
(46) $<$
(47) 48.814
(48) 5.05
(49) .1035
(50) .0138
(51) $.6\overline{8}$
(52) $1833.\overline{3}$
(53) 14.3
(54) .16
(55) .034
(56) 650
(57) $12\frac{5}{5}$
(58) $\frac{1}{40}$
(59) 250%
(60) $45.\overline{45}$%
(61) 37.5%

(62) .5%
(63) .8
(64) $.8\overline{3}$
(65) $\frac{5}{11}$
(66) $\frac{1}{15}$
(67) 2, 5, 10
(68) 2, 3, 4, 6, 9
(69) 90% present
(70) 1683 books
(71) .99
(72) 32.5%
(73) 8

(74) 5.2
(75) 8 lawns
(76) 2 hours
(77) \$46
(78) \$191

REMEDIATION

(1) 27, 32, 1
(2) $9 \div 4$ $\frac{9}{4}$ $8\overline{)3}$ $3 \div 8$
(3) 19, 23 8, 9, 10, 12, 14 31
(4) $2^3 \times 5^2$ $5^2 \times 7$ $2 \times 3^2 \times 5$
(5) 18: 1, 2, 3, 6, 9, 18
28: 1, 2, 4, 7, 14, 28
30: 1, 2, 3, 5, 6, 10, 15, 30
(6) 7, 14, 21, 28, 35
11, 22, 33, 44, 55
21, 42, 63, 84, 105
(7) 5 7 16
(8) 75 18 100
(9) $1\frac{1}{3}$ $1\frac{1}{2}$ $1\frac{2}{3}$
(10) $\frac{7}{3}$ $\frac{22}{5}$ $\frac{28}{9}$
(11) $n=15$ $n=10$ $n=21$
(12) $>$ $<$ $>$
(13) $6\frac{2}{15}$ $4\frac{1}{18}$ $9\frac{5}{12}$
(14) $6\frac{7}{12}$ $2\frac{5}{7}$ $2\frac{7}{10}$
(15) $\frac{4}{5}$ $\frac{1}{6}$ $\frac{1}{6}$
(16) $\frac{8}{15}$ $\frac{44}{7}$ $\frac{5}{12}$
(17) $\frac{3}{4}$ $\frac{3}{8}$ $\frac{1}{24}$
(18) .007 .7 .0007
(19)
(20) 699 698.99 700 1000
(21) 700 698.994 698.9935 699.0
(22) $(4 \times 10^1) + (2 \times \frac{1}{10^1}) + (5 \times \frac{1}{10^3})$
$(1 \times 10^3) + (5 \times \frac{1}{10^2}) + (1 \times \frac{1}{10^3})$
$(2 \times 10^2) + (4 \times \frac{1}{10^2}) + (3 \times \frac{1}{10^4})$
(23) $>$ $>$ $<$
(24) 21.323 21.345 17.405
(25) 3.59 3.35 6.77
(26) .00156 .0084 .00162
(27) $.58\overline{3}$ $136.\overline{6}$ $8.\overline{8}$
(28) .24 46.67 27.67

(29) 4250 .326 500

(30) 5 2, 3, 6, 9 3, 9

(31) .4, 40% .$8\bar{3}$, $83.\bar{3}\%$ / $83\frac{1}{3}\%$

(32) 13/20, 65% 1/25, .8% / 4/5%

(33) .04, 1/25 .005, 1/200

(34) 4/45 7/33 11/45

(35) } 30% 2.25 200

(36) }

(37) } 56 coins are not nickels 80% lower than "A"

(38) }

(39) 2/15 of the cake
1/6 received "A"

(40) $22 selling price
30% discount