MAP 239+ (T3) Issue 4

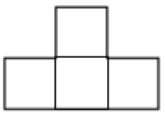
1. 10.9
2. 10.2
3. 1.1
4. 1.3
5. 14.9
6. 3.7
7. 7.6
8. 4.8
9. 11
10. 3.9
11. 5.5
12. 16
13. 1.1
14. 14.7
15. 11
16. 16.7
17. 4.9
18. 3.5
19. 0.9
20. 1.9

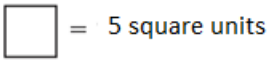
21. 4 3/5
22. 20 2/4
23. 20 2/6
24. 18 7/8
25. 13 3/9
26. 14 2/6
27. 20 3/4
28. 20 5/6
29. 17 5/8
30. 12 6/9
31. 25
32. 33
33. 26
34. 59
35. 35
36. 40
37. 31
38. 47
39. 68
40. 62

41. 32,000
42. 1,000
43. 320,000
44. 36,000
45. 36,000
46. 24,000
47. 2,800
48. 360,000
49. 32,000
50. 240,000
51. 16
52. 6
53. 56
54. 32
55. 24
56. 36
57. 72
58. 8
59. 119
60. 54

61. 108
62. 12
63. 108
64. 2
65. 120
66. 5
67. 240
68. 98
69. 30
70. 144
71. 7
72. 90
73. 6 pounds
74. 40
75. 350 (kg, cow)
76. Ans = 16, 8, 4
77. 14 (pcs)
78. $210
79. $2.10
80. 20 ¢

81. 75÷15 = 5 plates
82. 392÷7 = 56
83. 86 - 59 = $27
84. 15÷5 = 3 pieces
85. 9×2×20 = 360 rooms
86. 2×0.85 = 1.70
    3×0.90 = 2.70
    1.70 + 2.70 = 4.40
    5 - 4.40 = $0.60
87. 2×24 + 14 = 62
88. (a) 9:30 - 1:00 = 8:30 P.M.
    (b) 9:30 A.M.
89. 13:15 - 1:30= 11:45 A.M.
90. 16
91. A
    Mark: 1, 3, 5, 7
    Jason: 2, 4, 6, 8
    It is is fair.
92. 2 dad's steps = 3 Mark's steps.
    4 dad's steps = 6 steps by Mark
93. 2×5×6 = 60
    2 + 5 + 6 = 13
    6 – 2 = 4
94. D
95. A
96. C
    22 – 19 – 11 = – 8
97. 19
98. 2:35 – 0:40 = 1:55 pm
99. C
100. 70×3 = 210
     210 – (50 + 60) = 100
101. 8:15 – 0:30 = 7:45 A.M.
102. 3×12÷6 = 6
     6×3.5 = $21
103. Dan = 7 – 3 = 4
     Bob = 2×4 = 8 yrs old
104. 1Q 1D 13N
     3Q 2D 1N
     15 – 6 = 9
105. D
106. 210÷7 = 30
107. 28 – 5 – 17 = 6 tables
108. $81\times\frac{1}{3}\times\frac{1}{3}=$ 9
109. 4×5 = 20 square units





110. A

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Answer Key

1. 210	6. 420	11. 540	16. 700
2. 240	7. 490	12. 480	17. 400
3. 350	8. 630	13. 350	18. 810
4. 560	9. 450	14. 200	19. 600
5. 630	10. 490	15. 300	20. 700
21. 1/24	**26. 3/4**	**31. 6**	**36. 0.056**
22. 1/6	**27. 4/9**	**32. 0.049**	**37. 0.03**
23. 11/28	**28. 5/28**	**33. 50**	**38. 0.028**
24. 13/42	**29. 7/12**	**34. 0.063**	**39. 200**
25. 2/35	**30. 9/14**	**35. 3**	**40. 0.016**
41. 40	46. 0.04	51. 4.7	56. 2.75
42. 0.0032	47. 200	52. 9.5	57. 8.25
43. 9	48. 0.0048	53. 3.1	58. 6.25
44. 0.045	49. 7	54. 4.2	59. 3.375
45. 300	50. 0.064	55. 5.2	60. 4.875
61. A=2; B =2; A+B= 4	**66. 350**	**71. 40**	**76. 19**
62. 1/7	**67. 0**	**72. 1**	**77. 3**
63. 0.028	**68. 600**	**73. $1\frac{1}{5}$**	**78. 5, 10, 20, 25, 50, 100**
64. .002	**69. 50**	**74. 210**	**79. $\Delta = 5$**
65. 1000	**70. 160**	**75. 1 3/4**	**80. C**
81. 16 gallons	86. 34	91. $78	96. 3 minutes
82. 144	87. 240 in^3	92. 69 left	97. 13
83. 126 pounds	88. 98 pounds	93. $1.50 each box	98. 5 packs of paper
84. 45	89. $50	94. 2000	99. 480 ÷ 40 = $12
85. 8640	90. 24 hours	95. (a) B (b) 1 pint	100. 4×20×25 = 2000
101. (a) 10 (b) 100 (c) 1	**106. $242**	**111. 676000**	**116. $1,600**
102. (a) $18.00 (b) 30	**107. 3**	**112. 117000**	**117. 6,000**
103. 2 whites	**108. 108**	**113. 81,000**	**118. 432 tiles**
104. -10,000	**109. 120 outcomes**	**114. $2.00 (each pencil)**	**119. $32000**
105. 110 books	**110. 9 (mi)**	**115. $22**	**120. 1792**

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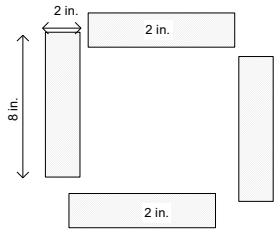
Answer Key

1. 121
2. 12100
3. 10201
4. 169
5. 961
6. 1.69
7. 10609
8. 106.09
9. 1.0609
10. 16900
11. $\frac{7}{24}$
12. $\frac{1}{4}$
13. $\frac{11}{45}$
14. $\frac{13}{32}$
15. $\frac{17}{40}$
16. $\frac{23}{27}$
17. $\frac{3}{8}$
18. $\frac{43}{72}$
19. $\frac{5}{6}$
20. $\frac{9}{10}$
21. ⅜ =0.375 = 37.5%
22. 12%
23. 120%
24. $2\frac{1}{4}$ =2.25 = 225%
25. $3\frac{3}{4}$ =3.75 = 375%
26. $1\frac{1}{5}$ =1.20 = 120%
27. $5\frac{1}{2}$ =5.50 = 550%
28. 352.5%
29. 157.5%
30. 276.25%
31. 450
32. 15
33. 0.18
34. 125
35. 0.25
36. 0.32
37. 16
38. 3.75
39. 90
40. 1.2
41. 2000
42. 0.16
43. 2700
44. 0.075
45. 0.14
46. 0.2
47. 4200
48. 0.56
49. 0.0175
50. 0.032
51. 64×2 = 128 in^2
52. 64 = 8×8
    Ans = 8 in.
53. 8 in
54. 16 in
55. 2(8 + 16) = 48 in
56. 8×3 = 24 (ft^2)
57. 30÷2 = 15
    15 = 7 + 8
    7×8 = 56
58. 2(10 + 14) = 48 in
59. 48÷4 = 12 in
60. 12×12 = 144 in^2
61. The area is 20×30 - 10×14 = 600 - 140 = 460 in^2
62. The perimeter is 2×(20+30) + 2(20 - 6) = 100 + 28 = 128 in
63. 2×8 = 16 (area of a rectangle)
    4×16 = 64 (sq. in)



64. 6×8 = 48
65. Each side of Square A is 36 = 6×6, its perimeter is 4×6 = 24. The perimeter of Square B is 24 - 12 = 12, each side is 12 ÷ 4 = 3 in, and the area is 3×3 = 9 in^2.

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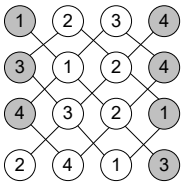
MAP 259+ (T3) Issue 4

66. 8×15 = 120 (in)
67. 30 (length) & 20 (width)
68. Its area is 20×30 = 600.
69. The area of the inner rectangle is 28×18 = 504.
70. Thus, the shaded part is 600 – 504 = 96.
71. 50×5% = 50×.05 = \$2.50
72. $12\times(6\frac{1}{8}+9\frac{3}{4}) = 12\times15\frac{7}{8} = 180+\frac{21}{2} = 190\frac{1}{2} = 190$ 1/2 inches
73. 12×3 = 36
    2(36 + 9) = 90 ft
74. 36×9 = 324 ft²
75. 324 = 36×9 = 18×18
    4×18 = 72 ft
76. 1 + 3 + 4 + 4 + 4 + 1 + 3 = 20



77. A
    L = 2
    N = 8
    K = 9
    M = 1
    2 + 8 + 9 + 1 = 20

	4	4	5	1
+	M	4	N	1
5	K	3	L	

78. $5^6 \div 5^2 = 5^{\square}$
    $\square = 2$
79. 10×12×9 = 1080
80. 40×0.75 = \$30.00
81. $320\div\frac{1}{3}$ = 960 mi
82. B
83. (20÷8)×60 = \$150
84. 24÷8 = 3
    $3^2 = 9$
    9×3 = 27 in²
85. $160\div3\frac{1}{5} = 50$
    350÷50 = 7 (hr)
86. 6:50 A.M.
    0:15
    0:30
    + 1:25
    ———
    2:10
    9:00
    -2:10
    ———
    6:50
87. 56÷4 = 14 miles per hour
88. $121\div30\frac{1}{4} = 4$
    $4\times2\frac{1}{2} = 10$ (gal)
89. $\frac{7.2-0.4\times12}{4} = \frac{2.4}{4}$ = \$0.60
90. 0.5×3 = 1.50
    3.90 – 1.50 = 2.40
    2.4÷2 = \$1.20

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Answer Key

1. $3x^2 - 6x - 9$
2. $-5x^4 + 10x^3 + 15x^2$
3. $-5x^3 + 10x^2 + 15x$
4. $-5x^2 + 10x + 15$
5. $-9x^3 + 3x^2 - 9x$
6. $-2x - 4$
7. $-8x^3 - 12x^2$
8. $-2x^2 - 2x$
9. $-6x^3 + 6x^2$
10. $-4x^3 - 4x^2 - 2x$
11. $-4x^3 - 4x$
12. $9x^2 - 3x - 6$
13. $6x^4 + 9x^3 + 9x^2$
14. $2x^3 + 4x^2$
15. $4x^4 + 12x^3 - 8x^2$
16. $4x^3 + x^2 + 3x$
17. $4x^3 + 2x^2 + 6x$
18. $x^2 - x - 2$
19. $4x^2 + 4x + 12$
20. $-4x^4 + 4x^3 + 12x^2$
21. $x^2 + 8x + 12$
22. $x^2 + 9x + 14$
23. $x^2 + 10x + 16$
24. $x^2 + 11x + 18$
25. $2x^2 + 9x + 4$
26. $2x^2 + 5x + 2$
27. $2x^2 + 9x + 9$
28. $2x^2 + 13x + 15$
29. $2x^2 + 21x + 27$
30. $6x^2 + 17x + 12$
31. $(x - 4)(x + 6)$
32. $(x - 2)(x + 7)$
33. $(x - 1)(x + 9)$
34. $(x + 4)(x + 6)$
35. $(x + 9)(x + 5)$
36. $(x - 4)(x + 2)$
37. $(x - 3)(x - 2)$
38. $(x - 5)(x - 4)$
39. $(2x + 7)(x - 3)$
40. $(3x - 4)(2x - 3)$
41. $4x - 10$
42. $-8x^2 + 2x + 27$
43. $-20x^2 - 12x - 23$
44. $-10x^2 + 4x + 2$
45. $13x^2 - 19x - 21$
46. -16
47. -22
48. $19x^6 + 20x^3 + 12x^2 - 17x + 4$
49. $3x^2 - 20x - 35$
50. $16x^6 - 16x^4 + -14x^3 + 5x^2 - 15x$
51. $1.80 \div 3 = 0.60$ (each eraser)
    $0.60 \times 12 = \$7.20$ (a dozen)
52. 20 (outcomes)
    Let AB mean that Alex is the chair and Ben is the vice-chair. There are 20 possible outcomes as the previous problem.
53. $1 + 70\% = 1.7$
    $5 \times \$1.7 = \$8.50$
54. $29 - 5 - 4 - 2 = 18$
    $18 \div 3 = 6$
    $6 + 5 = 11$ (first)
    $6 + 4 = 10$ (second)
    $6 + 2 = 8$ (third)
55. $120 \times 80 = 9600$ (total area)
    $100 \times 60 = 6000$ (area of inner field)
    $9600 - 6000 = 3600$ sq. yd. (side walk)
56. $6 \div 1.5 = 4$
    $3 \div 1.5 = 2$
    $4.5 \div 1.5 = 3$
    $2 \times 3 \times 4 = 24$ blocks
57. $10 + 30 + 3 = 43$ (to exhaust all whites and blues as the worst case)
58. $30 + 20 + 1 = 51$ (to exhaust all blues, reds, then one white)
59. $3 + 3 + 1 = 7$ (all different colors)
60. $35 - 20 = 15$
    $60 \times \frac{15}{20} = 60 \times \frac{3}{4} = 45$ (liters more to hold)
    $60 + 45 = 105$ liters (capacity)
61. $96 \times 7\frac{1}{2} = 720$
62. $\frac{16}{64} = \frac{1}{4} = 25\%$
63. $8 \div 4 = 2$
    $2^2 = 4$ time larger
64. C

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65. 19 – 14 = 5 bean rows
Every 5 bean rows, there are 14 corn rows.
$35\times\frac{14}{5}= 7\times14 =$ 98 corn rows

66. 9.45÷3×5 = $15.75

67. $15 \div \frac{5}{8}$ = 24 mi

68. $15\div\frac{3}{8}$ = 40 mi

69. 2.25

70. 10/25 = 40%

71. 10

72. (160×4)×3 = $1920

73. 500×6%=30
500+$30=$530

74. 401
4 + 0 + 1 = 5

75. 72

76. 150÷6 = 25
25 = 5×5
5×5×5 = 125 in^3

77. $\frac{1}{2}(10+x) = 20$
x = 30

78. 75 in^2

79. $\frac{3}{12} = \frac{1}{4}$ = 1/4

80. $\frac{3}{12} = \frac{1}{4}$ = 1/4

81. $\frac{1}{4}$ = 1/4

82. $\frac{7}{16}$ = 7/16

83. 32

84. 81 = 9 × 9
9÷2 = 4.5
2(9+4.5) = 27 in

85. (a) 60×20%=60×0.2 = $12
(b) 60 – 12 = $48

86. 80%(40) = 0.8×40 = $32.00

87. 150 – 30 = $120.00

88. 80%(**125**) = 100
or
100÷0.8 = $125.00

89. 1 + 20% = 1.2
3,000×1.2 = 3,600

90. **5000**×1.2 = 6000
or
6000÷1.2 = 5000

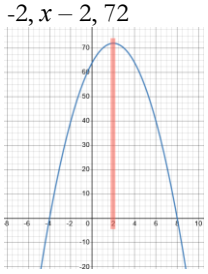
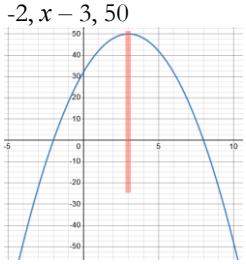
Answer Key

1.
$3x + 4$
$+) 2x + 5$

$5x + 9$

2.
$5x + 4$
$-) 3x + 2$

$2x + 2$

3. $6x + 3 + 2x^2 + 4x + 3$
$= 2x^2 + 10x + 9$
4. $6x^2 + 3x + 2x^2 + 4x + 6$
$= 8x^2 + 7x + 6$
5. $x^5, x^3, x^2, x, 1$
6. 5
7. 36
8. –21
9. $–10 + 3x – 21x^2 + 36x^3 – ¼ x^5$
10. $–¼x^5 + 36x^3 – 21x^2 + 3x – 10$
11. $(x – 4)(x + 6)$
12. $(x – 2)(x + 7)$
13. $(x – 1)(x + 9)$
14. $(x + 4)(x + 6)$
15. $(x + 9)(x + 5)$
16. $(x – 4)(x + 2)$
17. $(x – 3)(x – 2)$
18. $(x – 5)(x – 4)$
19. $(2x + 7)(x – 3)$
20. $(3x – 4)(2x – 3)$
21. $x^2 – 8x – 9$
22. $x^2 – 10x + 9$
23. $x^2 – 2x – 8$
24. $2x^2 + 9x + 7$
25. $x^2 – 10x + 21$
26. $2x^2 + 5x – 18$
27. $x^2 + 14x + 45$
28. $6x^2 – 4x – 32$
29. $8x^2 – 2x – 21$
30. $35x^2 + 12x + 1$
31. a) $3, x + 5, x – 5$
b) -5, 5; 0
c) U, 0, -75
d) $1, x , -75$
32. a) $-1, x + 4, x – 6$
b) -4, 6; 1
c) D, 1, 25
d) $-1, x – 1, 25$
33. a) $-2, x + 4, x – 8$
b) -4, 8; 2
c) D, 2, 72
d) $-2, x – 2, 72$
e)

34. a) $2, x + 3, x – 7$
b) -3, 7; 2
c) U, 2, -50
d) $2, x – 2, -50$
35. a) $-2, x + 2, x – 8$
b) -2, 8; 3
c) D, 3, 50
d) $-2, x – 3, 50$
e)

36. a) + 6, – 6
b) 0
c) 0, -18
d) 0.5
e) 0.5, + 6, – 6
f) 0.5, 0, -18
g) 0.5, 0, -18
37. a) – 4, + 6
b) -1
c) -1, 5
d) -0.2
e) -0.2, – 4, + 6
f) -0.2, -0.4, 4.8
g) -0.2, -1, 5

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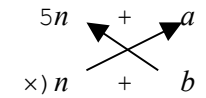
38. a) + 3.5, – 8.5
    b) 2.5
    c) 2.5, 72
    d) -2
    e) -2, + 3.5, – 8.5
    f) -2, 10, 59.5
    g) -2, 2.5, 72
39. a) + 3, – 7
    b) 2
    c) 2, -12.5
    d) 0.5
    e) 0.5, + 3, – 7
    f) 0.5, -2, -10.5
    g) 0.5, 2, -12.5
40. a) + 2, – 8
    b) 3
    c) 3, 50
    d) -2
    e) -2, + 2, – 8
    f) -2, 12, 32
    g) -2, 3, 50
41. $4^6 = (4\times4)^3 = 16^3$
    Ans = 3
42. 4/3
43. $0.5x + 1 = 0.2x + 10$
    $0.3x = 9$
    $x = 30$
44. 17÷25 = 0.68 = 68%
45. 4 lb 6 oz = $4\frac{6}{16} = 4\frac{3}{8}$lb
    $0.4\times4\frac{3}{8}$ = \$1.75
46. 60÷2 = 30
    60 – 20= 10 (width)
    old area = 20×10 = 200
    Since each has the same increase,
    40÷4 = 10.
    new length = 20+10 = 30
    new width = 10+10 = 20
    new area = 30×20 = 600
    the increase of area is 600 = 200 = 400 in²
47. 485 + 55 = 540
    540÷9 = \$60.00
48. 120×4 = \$480 (regular)
    2,400 – 480 = \$1,920 (balcony)
    1920÷8 = 240 (balcony seats)
49. 3½×5 = 17.5
    20-17.5 = 2½ = 2 1/2 in
50. ½(20² – 10²)π
    = ½×300π
    = 300×1.57
    = 471 cm²
51. $(x – ½)^2 = 16$
    $x – ½ = \pm4$
    $x = ½ \pm4 = 4½$ or -3½
    Ans = -3.5 & 4.5 (in increasing order)
52. A
53. 60/(½+¾) = 48 mph
54. 12 + 18 = 30
    25% + 15% = 40%
    40%×30 = 12
    12 – 3 = 9 more hits
55. 5 ft 4 in = 5⅓ ft
    5⅓:6 = 16:18 = 8:9
56. 4×100 + 7×20 = \$540
57. Each side of Square A is 36 = 6×6, its perimeter is 4×6 = 24. The perimeter of Square B is 24 – 12 = 12, each side is 12 ÷ 4 = 3 in, the area is 3×3 = 9 in².
58. 4×5 = 20
59. In the rectangle, the length is twice the width, the width is 10 cm. The area of the two combined circles is $2(10^2)\pi = 200\pi$ = 200 pi
60. (1, 1), (1, 2), (2, 1), and (2, 2)
    $\frac{4}{36}$ = ⅑ = 1/9
61. A
62. D
    $40\times1.5\times10^8 = 60\times10^8 = 6\times10^9$
63. D
64. B
65. A
66. A
67. B
    63 – 15 = 48
    48 – 13 = 35
    35 – 11 = 24
    24 – 9 = 15
    15 – 7 = 8
68. C
    1 yd = 3 ft = 36 in
    50×36 = 1800
    26π = 81.64 (the distance of a full roation)
    1800 ÷ 81.64 = 22.04
69. B
70. D
71. A
72. B
73. C
74. D
75. D
76. C
77. B
78. B
79. B
80. C

Answer Key

1. $2(7x + 4)(8x – 7)$
2. $5(x + 2)(10x – 3)$
3. $3(5x + 4)(6x + 5)$
4. $4(5x – 7)(7x + 4)$
5. $2(x + 5)(4x – 3)$
6. $x + 1$
   $x^2 + 2x + 1 =$
   $(x + 1)(x + 1)$
   $x^2 + 5x + 4 =$
   $(x + 1)(x + 4)$
7. $x + 4$
   $3x^2 + 16x + 16 =$
   $(x + 4)(3x + 4)$
   $x^2 + 6x + 8 =$
   $(x + 4)(x + 2)$
8. $x – 2$
   $2x^2 – 7x + 6 =$
   $(x – 2)(2x – 3)$
   $x^2 – 4x + 4 =$
   $(x – 2)(x – 2)$
9. $3x + 1$
   $3x^2 + 4x + 1 =$
   $(3x + 1)(x + 1)$
   $12x^2 + 7x + 1 =$
   $(3x + 1)(4x + 1)$
10. $x + 1$
    $2x^2 + 3x + 1 =$
    $(x + 1)(2x + 1)$
    $3x^2 + 5x + 2 =$
    $(x + 1)(3x + 2)$
11. $\frac{8}{3}$
12. $\frac{7}{8}$
13. $\frac{7}{8}$
14. $\frac{8}{3}$
15. $\frac{7}{2}$
16. $\frac{7}{3}$
17. $\frac{9}{8}$
18. $\frac{5}{7}$
19. $\frac{5}{3}$
20. $\frac{7}{9}$
21. $5n^2 + 13n + 6 = (5n + \_)(n + \_)$



$5n^2 + (5b + a)n + ab$

By trying and error, you will figure out that a=3, b=2. So, $5n^2 + 13n + 6 = (5n+3)(n+2)$

22. $\frac{1}{y(x-2)}$
23. $\frac{(x+y)y}{(x+y)(x-y)} = \frac{y}{x-y}$
24. $\frac{(a-3)(x+ay)}{(a-3)(2x+y)} = \frac{x+ay}{2x+y}$
25. $\frac{9y}{(x+6)^2} \div \frac{12y}{x(x+6)}$
    $= \frac{9y}{(x+6)^2} \cdot \frac{x(x+6)}{12y}$
    $= \frac{3x}{4(x+6)}$
26. $\frac{x^2(4x+3)(4x-3)}{3x(4x+3)(x-3)} = \frac{x(4x-3)}{3(x-3)}$
27. $\frac{(x-8)(x+4)}{(3x-2)(x-8)} = \frac{x+4}{3x-2}$
28. $\frac{x-3}{5x-1}$
29. $\frac{(x+2)(y+3)}{(x+2)(y+4)} = \frac{y+3}{y+4}$
30. $\frac{(x-2)(x+a)}{(x-2)(x+3a)} = \frac{x+a}{x+3a}$
31. $\frac{(5x-4)(x+2)}{(5x-4)(2x+1)} = \frac{x+2}{2x+1}$
32. $\boxed{2}$
33. $\frac{3(x-1)(x+6)}{(3x-8)(x+6)} \cdot \frac{(4x+5)(3x-8)}{2(4x+5)(x-1)}$
    $= \frac{3(x-1)}{3x-8} \cdot \frac{3x-8}{2(x-1)}$
    $= \boxed{\frac{3}{2}}$
34. $\frac{5x(x+4)}{x^2(x-2)} \cdot \frac{(x-4)(x+3)}{(x-4)(x+4)} = \frac{5(x+3)}{x(x-2)}$
35. $\frac{-(3x-1)(x+5)}{-(x+1)(3x-1)} \cdot \frac{-(2x-9)(x+1)}{-(2x-9)(x-3)} = \frac{x+5}{x-3}$
36. $\frac{3(x+2)}{5y} \cdot \frac{x^2+4}{(x+2)(x+8)} = \frac{3(x^2+4)}{5y(x+8)}$
37. $\frac{(x+6y)(x-y)}{(x-y)y^2} \cdot \frac{(2x+3y)(x+6y)}{(x+4y)y}$
    $= \frac{(2x+3y)(x+6y)^2}{(x+4y)y^3}$
38. $\frac{(x-2y)^2}{7xy^2} \div \frac{(4x+5y)(x-2y)}{5xy(4x+5y)}$
    $= \frac{(x-2y)^2}{7xy^2} \cdot \frac{5xy(4x+5y)}{(4x+5y)(x-2y)}$
    $= \frac{5(x-2y)}{7y}$

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39. $\frac{(6x-5)(x-5)}{(4x+9)(x-5)} \div \frac{(3x+4)(6x-5)}{(4x+9)(6x+5)}$
$= \frac{(6x-5)(x-5)}{(4x+9)(x-5)} \cdot \frac{(4x+9)(6x+5)}{(3x+4)(6x-5)}$
$= \frac{6x+5}{3x+4}$

40. $\frac{(3x+4)(7x-2)}{(5x+2)(x-9)} \div \frac{(4x-3)(3x+4)}{(5x+2)(4x-3)}$
$= \frac{(3x+4)(7x-2)}{(5x+2)(x-9)} \cdot \frac{(5x+2)(4x-3)}{(4x-3)(3x+4)}$
$= \frac{7x-2}{x-9}$

41. $\frac{3x+12}{3x^2-15x} \div \frac{x^2-16}{x^2-3x-10}$
$= \frac{3(x+4)}{3x(x-5)} \times \frac{(x-5)(x+2)}{(x-4)(x+4)}$
$= \frac{x+2}{x(x-4)}$

42. $30x^4y^4z^5$

43. $5x^5y^3z^5$

44. $4\frac{1}{xyz^2}$

45. $\frac{1}{3}\frac{1}{y^2z}$

46. $1\frac{1}{2}x^3z$

47. $\frac{4}{5}xz^3$

48. $\frac{1}{10}\frac{1}{z}$

49. $15\frac{x^2}{y}$

50. $5x^3z^3$

51. $1x^4z^3$

52. $(25^{\frac{1}{2}})^3 = 5^3 = 125$

53. $\frac{1}{16^{\frac{1}{2}}} = \frac{1}{4}$

54. $(-27)^{\frac{4}{3}} = ((-27)^{\frac{1}{3}})^4 = (-3)^4$

55. $(4)^{\frac{3}{2}} = (4^{\frac{1}{2}})^3 = 8$

56. 9

57. $\frac{1}{9}$

58. 10

59. 5

60. 25

61. 1/25

62. -2

63. -1

64. 1

65. 11

66. $\frac{1}{4}$

67. $\frac{2}{3}$

68. 5

69. 4

70. 125

71. 9

72. 8

73. $3y$

74. $2a$

75. $\frac{1}{3}$

76. $\sqrt{3}$

77. $x = 4$

78. 18

79. $x = -½$

80. $x = 162$

81. B

82. 2.5

83. $a^2 + b^2 = (a+b)^2 - 2ab = s^2 - 2t$

84. $a/b + b/a = (a^2 + b^2)/(ab) = (s^2 - 2t)/t$

85. $a^3b + ab^3 = ab(a^2 + b^2) = t(s^2 - 2t)$

86. $|y|\sqrt{x^2-1}$

87. 750

88. -s - t

89. 3 dozen = 36 = 12 × 3, thus the cost is 12×10 = 120¢ = $1.20

90. distance = speed × time, 6 seconds = $\frac{1}{10}$ minute, so the distance is $0.8\times\frac{1}{10}=0.08$ (mile).

91. $\frac{1}{2}m(a+b)$
Think of a trapezoid with top a, base b, and height m. The sum of the sequence

92. The length of the diagonal of a face is $\sqrt{2}s$, the length of a spatial diagonal is $\sqrt{3}s$.

93. $\frac{c}{a-b}$

94. 8,000,000÷100=80,000 ($100 bills)
400,000,000÷10=40,000,000 ($10 bills)
80,000:40,000,000=80:40,000=1 : 50

95. 18×3 = 54 (hotdogs) = 27×2
Each share = 2 hotdogs

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