Answer Key

1. $\frac{10}{6} = 1\frac{4}{6}$
2. $\frac{12}{7} = 1\frac{5}{7}$
3. $\frac{13}{4} = 3\frac{1}{4}$
4. $1\frac{3}{7}$
5. $\frac{5}{7}$
6. 2
7. $\frac{4}{6}$
8. $3\frac{2}{3}$
9. $1\frac{1}{4}$
10. $1\frac{3}{5}$
11. 29
12. 43
13. 39
14. 29
15. 23
16. 29
17. 19
18. 38
19. 35
20. 37
21. 240,000
22. 210,000
23. 15,000
24. 120,000
25. 21,000
26. 1,500
27. 150,000
28. 21,000
29. 18,000
30. 180,000
31. 1,200
32. 24,000
33. 2,400
34. 12,000
35. 24,000
36. 1,800
37. 12,000
38. 2,100
39. 18,000
40. 15,000
41. 25
42. 15
43. 12
44. 40
45. 9
46. 12
47. 24
48. 48
49. 15
50. 36
51. 120
52. 9.6
53. 144
54. 6
55. 83 & 1 (Remainder)
56. 84
57. 2
58. 10
59. 174
60. 2
61. 7.2
62. 3
63. 45
64. 25
65. 4.4
66. 20
67. 5
68. 4.8
69. 6
70. 960
71. 14 +12 = 26 birds (Duck is a kind of birds.)
72. (a) 7 - 2 = 5, 5×5 = 25 lollipops
    (b) 42 ÷ 7 = 6 days
    (c) 20÷2 = 10, 10×5 = 50 lollipops
73. 30 - 17 - 3 = 10
74. 22 - 5 - 3 - 2 = 12
75. 111 - 11
76. 150÷30 = 5 hrs

77. 0, 1, 2, 3, 4, 5, 6
    0 + 6 = 6
78. 91 - 1 = 90
    90÷2 = 45
    45 + 1 = 46
79. 4×12 = 48 cm
80. 15 - 6 - 5 = 4
81. 6:30 – 0:40 = 5:50 P.M.
82. 52÷2 = 26
83. 6050
84. $15\times\frac{2}{3}$ = 10
85. 121 – 94 = 27
86. 2×(15 + 9) = 48
87. D
88. D
89. C
90. 8 corners &12 edges& 6 faces
91. B
92. 1+2+3+4+5+6 = 21
93. 8 or 9
94. C
95. 2×4×4 = 32
96. D
97. 6 + 20 + 2
    = 28
98. D
99. 20÷2 = 10
    10 + 2 = 12 marbles (left)
    10 - 2 = 8 marbles (right)
100. C

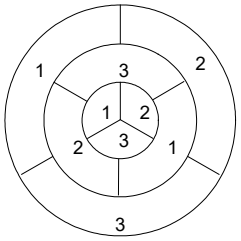
Answer Key

1. $\frac{1}{20}$
2. $\frac{1}{3}$
3. $\frac{11}{24}$
4. $\frac{13}{40}$
5. $\frac{2}{3}$
6. $\frac{3}{28}$
7. $\frac{4}{27}$
8. $\frac{5}{24}$
9. $\frac{7}{10}$
10. $\frac{9}{100}$
11. 3
12. 0.0012
13. 4
14. 0.001
15. 0.2
16. 0.0016
17. 700
18. 0.0018
19. 30
20. 0.0004
21. 80
22. 0.027
23. 2
24. 0.16
25. 7
26. 0.002
27. 3
28. 0.0015
29. 0.06
30. 0.0012
31. 3.6
32. 10.5
33. 4.4
34. 3.5
35. 7.5
36. 2.1
37. 6.75
38. 5.25
39. 4.375
40. 2.375
41. 900
42. $\frac{2}{3} = 2/3$
43. .01
44. .001
45. 0.03
46. 24 & 3 (remainder)
47. 60
48. 150
49. True
50. 10
51. 18
52. 24
53. 150
54. 40
55. 50
56. 30
57. 400
58. {2, 4, 10, 20, 50, 100}
59. 38
60. B
61. 64 - 8 = 56 books
62. 125×8 = 1000 cans
63. 20,200×7 = 141,400
64. Jerald: 60
    Kerry: 80
    Larry: 75
65. 400×8 = 3200 m = 3.2 km
66. 8×4 = 32 people
67. 15 + 9 = 24
    32 - 24 = 8 (left)
68. 2(1.35 + 1.65) = 6 km
69. See the following table.

apples	3
bananas	4
peaches	10
pears	5

70. 3×12×0.5 = $18
71. 1.2÷2 = 0.6
    3×12×0.6 = $21.60

72. 2÷5 = 0.4
    3×12×0.4 = $14.40
73. 450 + 367 + 402 + 390 + 451 + 375 = 2435
74. 2(7.3 + 8.7) = $32
75. 8×1.5 = $12
76. 150×3 = 450 (pounds)
77. (180 - 10)÷2 = 85 (Wilson)
    180 - 85 = 95 (Larry)
78. 200 ÷ 5 = 40
79. 64 ounces = 2 quarts
    2×15 = 30 quarts
80. 4.5×220 = 4.5×2×110 = 9×110 = $990
81. $\frac{60-48}{60}$ = 0.2 = 20%
82. 290÷50 = 5.8 hours = 5 hr & 48 min
83. 16×9 = 144 (rectangle area)
    $\frac{1}{2}$×2×2 = 2 (triangle area)
    2×4 = 8
    144 – 8 = 136 cm² (shaded region)
84. 1200/500 = 2.4 hours = 2 hr & 24 min
85. 3.5×16 = 4 ft & 8 in
86. 600×10% = 60
    600 + 60 = 660
    660÷(5.20 – 4.00) = 550
    550 + 1 = 551
87. $\frac{240}{15}$ = 16 gal
88. 240×$\frac{3}{15}$ = $48
89. $\frac{240}{50}$ = 4.8 hr = 4 hr & 48 min
90. A
91. 3



92. A
93. (a) $\frac{21+5}{2}$ = 13 (years old Andy)
    (b) $\frac{21-5}{2}$ = 8 (years old Brandon)
94. 600÷240 = 10÷4 = 2.5
    2.5×50 = 125 mL milk
95. 1.2
96. 6×5÷2 = 15 chords
97. 3 possible pairs
    WB, WR, and BR.
98. 6 possible pairs
    WW, WB, WR, BB, BR, and RR.

Answer Key

1. $5\frac{3}{7}$
2. $1\frac{1}{10}$
3. $3\frac{1}{2}$
4. $5\frac{11}{35}$
5. $5\frac{17}{35}$
6. $12\frac{13}{24}$
7. $16\frac{41}{63}$
8. $4\frac{7}{8}$
9. $1\frac{15}{16}$
10. $15\frac{8}{15}$
11. 405%
12. 702%
13. 102.5%
14. 208%
15. 384%
16. 207.5%
17. 217.5%
18. 306%
19. 0.0035 = 0.35%
20. 5.5 = 550%
21. 35
22. 0.6
23. 60
24. 0.32
25. 40
26. 0.35
27. 0.72
28. 12.5
29. 0.025
30. 1.4
31. 0.05
32. 0.64
33. 0.48
34. 0.035
35. 1500
36. 1000
37. 3500
38. 0.32
39. 0.175
40. 4500
41. 2.4
42. 9
43. 75
44. 16
45. 72
46. 36.4
47. 60.8
48. 39.2
49. 64
50. 12
51. 5.4
52. 12.5
53. 144
54. 60
55. 130
56. 20
57. 76
58. 24
59. 90
60. 50
61. 8 (in) = 48÷(4 + 8)×2
62. B
    12÷4 = 3
    3×3 = 9
63. B
    48 - 16 = 32
64. A
    The length is 35÷5 = 7 (in).
    2×(5 + 7) = 24 (in).
65. C
    18×15 = 9×30 = 270
66. 12 (cm) = 72 ÷ 6
67. $\frac{1}{2}$×6×8 =24 (cm^2)
68. $\frac{1}{2}$×5×8=20 (cm^2)
69. $\frac{1}{2}$×8×12=48 (cm^2)
70. $\frac{1}{2}$×7×10=35 (cm^2)
71. $\frac{1}{2}$×5×12=30 (cm^2)
72. $\frac{1}{2}$×6×8=24 (cm^2)
73. $\frac{1}{2}$×10×20=100 (cm^2)

74. Since the perimeter of the triangle is 50, x should be 26. Now that the area is $\frac{1}{2}\times b\times h = \frac{1}{2}\times 26\times 5=65$ in^2

75. $8\times 4 = 32$ (cm)

76. 8 cm

77. $8\times 3.14 = 25.12$ (cm)

78. $8\times 8 = 64$ cm^2

79. 4 cm

80. $4\times 4\times 3.14 = 50.24$ (cm^2)

81. $360\div 24 = 15$ gal

82. $10\times \frac{1}{5}\times 8\times 5 = \$80.00$

83. A
3.0÷12 = \$0.25 per ounce (12-ounce cheaper)
5.4÷18 = \$0.30 per ounce

84. 240 ÷ 60 = 4 (hr)
4 – 1 = 3 hr (expected)
240÷3 = 80 mph
80 – 60 = 20 mph faster

85. $400\times 4\times 0.1 = \$160$

86. $\frac{14}{3\frac{1}{2}} = 4$ hr

87. $\frac{30-21}{30} = 0.3 = 30\%$

88. 15 ÷0.75 = 20
20×4 = 80 packets

89. B
42.00÷600 = \$0.07 per kilowatt
48.00÷800 = \$0.06 per kilowatt (the second cheaper)

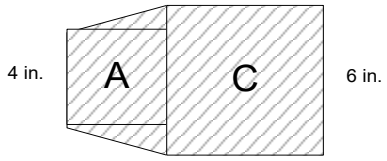
90. $2\frac{5}{6} = \frac{17}{6}$
$\frac{17}{6}\div\frac{1}{6} = 17$

91. 1 – 20% = 1- 0.2 = 0.8
200×0.8 = 160

92. C

93. 125÷2.5 = 50
50×8 = 400 mi

94. $\frac{1}{2}(4+6)(4) = 20$ in^2 (area of trapezoid)
$6^2 = 36$ in^2 (square area)
20 + 36 = 56 in^2 (total)



95. 24.5÷7 = 3.5
3.5×12 = 42 in

96. 192

97. 2 (the only prime that is even)

98. $24\times 25\% = 24\times\frac{1}{4} = 6$ hr

99. 200 – 100 = 100
199 – 99 = 100
…
101 – 1 = 100
100 + 100 + … + 100 = 100×100
Ans = 100

100. R=5, S=6, T=7

			5	6	7
		×	**7**	**4**	**1**
			5	6	7
		2	2	6	8
	3	9	6	9	
4	2	0	**1**	**4**	**7**

Ans = 5 (R) & 6 (S) & 7 (T)

Answer Key

1. $12x^3 - 8x^2 + x - 5$
2. $2x^3 + 19x^2 - x - 2$
3. $-3x^3 - 2x^2 + 8$
4. $-4x^3 - 4x^2 + x - 3$
5. $21x^2 + 1$
6. $-38x^2 + 74$
7. $-8x^3 + 63x^2 + 7x - 31$
8. $36x + 2$
9. $-2x^3 - 2x^2 + 8x - 1$
10. $-20x^6 + 12x^5 + 4x^3 + 6x^4 + 9x^2 = -20x^6 + 12x^5 + 6x^4 + 4x^3 + 9x^2$
11. $x^2 + 5x - 6$
12. $x^2 + 8x - 9$
13. $x^2 + 7x - 8$
14. $x^2 + x - 2$
15. $x^2 + 3x - 4$
16. $x^2 + 6x - 7$
17. $x^2 + 2x - 3$
18. $3x^2 + 28x + 32$
19. $2x^2 - 11x + 15$
20. $6x^2 - x - 1$
21. $0.\overline{02}$
22. $0.\overline{18}$
23. $0.\overline{1}$
24. $0.\overline{5}$
25. 1
26. $1.\overline{1}$
27. $1.6\overline{8}$
28. $0.1\overline{6}$
29. $\frac{0.1\overline{6}}{2} = \frac{0.16\overline{6}}{2} = 0.08\overline{3}$
30. $0.\overline{1}$
31. $1 + \frac{1}{5} + \frac{1}{30} = 1\frac{7}{30}$
32. $33\frac{1}{3}\%$
33. $83\frac{1}{3}\%$
34. $25.\overline{5}$
35. $0.2\overline{5}$
36. $1.\overline{6}$
37. $0.1\overline{6}$
38. $\frac{0.1\overline{6}}{2} = \frac{0.16\overline{6}}{2} = 0.08\overline{3}$
39. $0.0\overline{1}$
40. $0.0\overline{01}$
41. $\frac{2}{7}$
42. $\frac{3}{20}$
43. $\frac{4}{29}$
44. $\frac{5}{13}$
45. $\frac{6}{19}$
46. $\frac{7}{17}$
47. $\frac{8}{49}$
48. $\frac{9}{80}$
49. $\frac{10}{21}$
50. $\frac{7}{18}$
51. 6
52. $\frac{1}{20}$
53. $\frac{1}{6}$
54. $\frac{2}{5}$
55. $\frac{1}{6}$
56. $\left(\frac{10}{3}\right)\left(\frac{6}{5}\right) = 4$
57. $\left(\frac{14}{3}\right)\left(\frac{9}{7}\right) = 6$
58. $\left(\frac{18}{5}\right)\left(\frac{10}{9}\right) = 4$
59. 15
60. 63
61. 9
62. 15
63. 9
64. 18
65. 15
66. $2^2 \times 3 \times 7$
67. $2 \times 3^2 \times 5$
68. $2^5 \times 3$
69. $2^2 \times 5^2$
70. $3 \times 5 \times 7$
71. $2^2 \times 3^3$
72. $2^4 \times 7$
73. $2^3 \times 3 \times 5$
74. $2 \times 3^2 \times 7$
75. 2^7

76. 15×20 = 300
    300÷(15 – 3) = 25 days

77. Method I)
    Total: $4\times24\frac{1}{2} = 98$
    Left: $4\times12\frac{3}{4} = 51$
    Sold = 47

    Method II)
    $24\frac{1}{2} - 12\frac{3}{4} = 11\frac{3}{4}$
    $4\times11\frac{3}{4} = 47$

78. $\frac{1}{3}\times18 = 6$

79. $18\div\frac{3}{4} = 24$
    18 + 6 = 24

80. B
    2×2 = 4
    3×4 + 2 = 14
    4×14 = 56

81. $\frac{3}{8}$

82. 0.6÷4 = 0.15
    0.15×50 = $7.50

83. 33×0.15 = $4.95
    Ans = 33 minutes

84. $91 \div 35 = \frac{91}{35} = \frac{13}{5}$= 2.6 hours = 2 hr & 36 min

85. $\frac{5000-4000}{5000}$ = 0.2 = 20%

86. 27÷3 = 9
    8, 9, 10
    8×9×10 = 720

87. $\frac{3}{2} = 1\frac{1}{2}$

88. $\frac{35}{5}\times8 = 7\times8 = \$56$

89. 30

90. C
    The LCM of 2 and 3 is 6, which means they will meet each other every 6 days. So, the earliest day they are going to meet is next Monday.

91. $\frac{1}{2}\times12\times12 = 72$
    72÷4 = 18
    18×6 = 108 plants

92. A
    She can buy ice cream every 12 days.
    3, 6, 9, 12, 15, 18, 21, 24
    4, 8, 12, 16, 20, 24
    The next time she can buy it will be 12 days later, which is a Saturday.

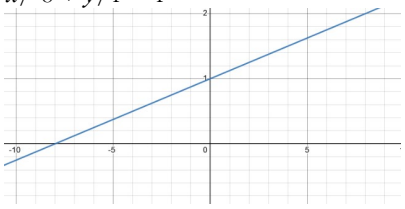
93. $30\times\frac{1400}{8}$
    = 30×14×125
    = 15×7×(2×2×125)
    = 15×7×500
    = 105×500
    = 52,500 pounds

94. Mon = 3
    Tue = 6
    Wed = 12
    Thu = 24
    Fri = 48 cards

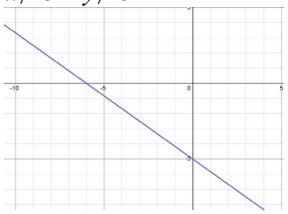
95. 1*yx*9×9 = 9*xy*1
    or
    9*xy*1÷9 = 1*yx*9
    What is the quotient in the long division of 9*xy*1÷9?
    If $x = 9$, then $y = 1$, but 9911 is not divisible by 9.
    Therefore, $x \neq 9$, thus the quotient of 9*xy*1÷9 must be 10*y*9. To be divisible by 9,
    1+0+*y*+9 must be divisible by 9, so $y = 8$.
    Ans = 1089

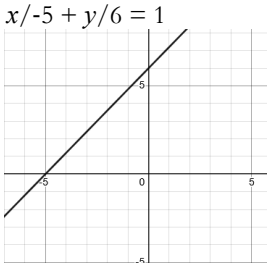
Answer Key

1. 2890000
2. 0.0225
3. 1.21
4. 6.73
5. 72200
6. 685
7. 270
8. 960
9. 5
10. 32
11. $20 \div \frac{2}{5} = 50$
12. 40%
13. 25%
14. 10
15. 40
16. $\frac{4}{3}$
17. 120
18. 25%
19. 125%
20. 40%
21. 8
22. 7
23. 9
24. 8
25. 3
26. 8
27. 9
28. −5
29. −1/2
30. −9
31. $y = x + 4$
32. $y = 2x + 4$
33. $y = \frac{-2}{3}x + 2$
34. $y = -2x + 6$
35. $y = -2x - 2$
36. $y = \frac{-2}{3}x - 2$
37. $y = 4$
38. $\frac{x}{6} + \frac{y}{8} = 1$
    x–intercept = 6 and y–intercept is 8.
39. x–intercept (y = 0) 12÷8 = 1.5
    y–intercept (x = 0) 12÷–3 = –4
40. Slope = $-\frac{3}{4}$
    x–intercept = 4
    y–intercept =3
41. Slope = $\frac{4}{3}$
    x–intercept = 3
    y–intercept = –4
42. Slope = $\frac{2}{3}$
    x–intercept = –3
    y–intercept =2
43. Slope = $\frac{5}{2}$
    x–intercept = 4
    y–intercept = –10
44. $2x + 3y = -7$
45. $4x - 3y + 24 = 0$
    $4x - 3y = -24$
    $\frac{x}{-6} + \frac{y}{8} = 1$
46. x–intercept = –6
    y–intercept = 8
47. $\frac{1}{2}(6 \times 8) = 24$
48. $\sqrt{6^2 + 8^2} = 10$
49. Quadrant VI
50. $\frac{x}{-12} + \frac{y}{16} = 1$
51. a) 1/8
    b) 1
    c) $y = (1/8)x + 1$
    d) $x/-8 + y/1 = 1$
    e)



52. a) -5/6
    b) -5
    c) $y = (-5/6)x + -5$
    d) $x/-6 + y/-5 = 1$
    e)

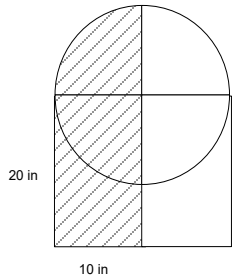


53. a) 6/5
    b) 6
    c) $y = (6/5)x + 6$
    d) $x/\text{-}5 + y/6 = 1$
    e) 

54. a) 7/5
    b) 7
    c) $y = (7/5)x + 7$
    d) $x/\text{-}5 + y/7 = 1$
    e)
55. a) -8/3
    b) -8
    c) $y = (-8/3)x + -8$
    d) $x/\text{-}3 + y/\text{-}8 = 1$
    e)
56. a) 4
    b) $4x - y = 8$
    c) $4x - y = -10$
    d) $x + 4y = 53$
    e) $x + 4y = 36$
57. a) 5/9
    b) $5x - 9y = -20$
    c) $5x - 9y = -33$
    d) $9x + 5y = 176$
    e) $9x + 5y = 70$
58. a) 1
    b) $x - y = -3$
    c) $x - y = 0$
    d) $x + y = 13$
    e) $x + y = 5$
59. a) -6
    b) $6x + y = 40$
    c) $6x + y = -12$
    d) $x - 6y = -129$
    e) $x - 6y = -18$
60. a) -9/10
    b) $9x + 10y = 51$
    c) $9x + 10y = 38$
    d) $10x - 9y = -100.2$
    e) $10x - 9y = -64$
61. $(x - 9)(x + 1)$
62. $(x - 9)(x - 1)$
63. $(x - 4)(x + 2)$
64. $(x + 1)(2x + 7)$
65. $(x - 7)(x - 3)$
66. $x = 2$ or $x = -9/2$
67. $x = -5$ or $x = -9$
68. $x = 8/3$ or $x = -2$
69. $x = 7/4$ or $x = -3/2$
70. $x = -1/5$ or $x = -1/7$
71. $0.\overline{001}$
72. $0.\overline{027}$
73. $0.0\bar{5}$
74. $0.08\bar{3}$
75. 0.0625
76. $0.0\bar{3}$
77. $0.0\bar{6}$
78. $0.\overline{037}$
79. $1.\bar{6}$
80. $0.\overline{10}$
81. $(2.25\times4)^2 = 9^2 = 81$
82. $\sqrt{15}\times\sqrt{35}\times\sqrt{21}$
    $= \sqrt{3\times5}\times\sqrt{5\times7}\times\sqrt{7\times3}$
    $= 3\times5\times7$
    $= 105$
83. C
84. $240 - 6 + 7 = 241$
85. $4^{60} \div 2^{30} = 2^{120} \div 2^{30} = 2^{90} = 8^{30}$
    $\square = 30$
86. C
87. $2(x + ¼) = x - ½$
    $x = -1$
88. $13 \div 65 = .2 = 20\%$
89. $125.6 \div 3.14 = 40$ in (diameter)
    $40 \div 2 = 20$ in (radius)
    $3.14\times20^2 = 1256$ in^2 (area)
90. $80 \div 10 = 8$
    $8\times8\times4 = 256$ cm^2
91. bigger : smaller = 2 : 1
    2 + 1 = 3
    ⅔: bigger one
    ⅓: smaller one
    $⅔\times48 = 32$ balls
92. Method I)
    $\frac{2}{7} + ½(\frac{2}{7}) = \frac{4.5}{7}$
    $126\times\frac{4.5}{7} = 18\times4.5 = 81$

    Method II)
    $126\times\frac{2}{7} = 36$
    $126 - 36 = 90$
    $½\times90 = 45$
    $45 + 36 = 81$
93. $250 + 150\times12 = 2050$ (total)
    $2050 - 1875 = \$175.00$

94. Flip the lower quarter circle fill up the left side.
$20 \times 10 = 200$ in^2
$\frac{1}{4}(10^2 \times 3.14) = 78.5$
$200 + 78.5 = 278.5$ in^2



95. B = (5, 13)
96. C=(11, 13)
97. D=(14, 5)
98. B
99. $7.2 \times 7.5 = \$54$
100. $60\sqrt{2} = 84.84$ ft

Answer Key

1. 4
2. 8
3. $\frac{1}{-3}$
4. 256
5. $\frac{9}{4}$
6. $\frac{27}{8}$
7. 64
8. 8
9. $\frac{1}{2}$
10. $x^{29/30}$
11. x^2y^4
12. x^5y^{10}
13. $\sqrt[3]{x}$
14. $\sqrt[6]{16\times 8}=\sqrt[6]{2^7}=2\sqrt[6]{2}$
15. $\sqrt{a^{1+\frac{1}{3}}}=\sqrt{a^{\frac{4}{3}}}=a^{2/3}$
16. $\frac{y^2}{8x}$
17. $\frac{1}{x^{1/3}y^{1/4}}$
18. $\frac{3x^{5/6}}{y^{1/3}}$
19. $x^{7/12}$
20. x^7y^4
21. 4
22. 8
23. -3
24. 256
25. $\frac{9}{4}$
26. $\frac{27}{8}$
27. 64
28. 8
29. $\frac{1}{2}$
30. $x^{29/30}$
31. x^2y^4
32. x^5y^{10}
33. $\sqrt[3]{x}$
34. $\sqrt[6]{16\times 8}=\sqrt[6]{2^7}=2\sqrt[6]{2}$
35. $\sqrt{a^{1+\frac{1}{3}}}=\sqrt{a^{\frac{4}{3}}}=a^{2/3}$
36. $\frac{y^2}{8x}$
37. $\frac{1}{x^{1/3}y^{1/4}}$
38. $\frac{3x^{5/6}}{y^{1/3}}$
39. $x^{7/12}$
40. x^7y^4
41. $-6x^{-3}y^2(-4x^{-2}y^6)=24x^{-5}y^8=\frac{24y^8}{x^5}$
42. $x^{-1}\cdot x^2\cdot x^{-3}\cdot x^4\cdot x^{-5}=1/x^3$
43. $(-x^2y^3)^7=-x^{14}y^{21}$
44. $(x^3)(x^4)=x^7$
45. $(-3x^3y^4)^2=9x^6y^8$
46. $(-x)(-2x^2)(-3x^3)(-4x^4)(-5x^5)=-120x^{15}$
47. $x^1\cdot x^2\cdot x^3\cdot x^4\cdot x^5=x^{15}$
48. $(-5a^2b^3)^2=25a^4b^6$
49. $t^2\cdot 3t^4=3t^6$
50. $3x^3\cdot 2x^2=6x^5$
51. $12x^2y^4z^4$
52. $48x^2y^3z^5$
53. $24x^4y^3z^3$
54. $12xy^3z^4$
55. $\frac{5}{9}\frac{1}{z^2}$
56. $\frac{1}{12}\frac{x}{y^4}$
57. $1\frac{3}{5}y$
58. $\frac{1}{4}\frac{x}{y^4z^4}$
59. $3\frac{x}{y^2z}$
60. $2\frac{2}{5}\frac{y^2z^4}{x^2}$
61. $\frac{x+1+2(x-1)}{(x-1)(x+1)}=\frac{3x-1}{(x-1)(x+1)}$
62. $\frac{3x+4(x-6)}{x^2-6x}=\frac{7x-24}{x^2-6x}$
63. $\frac{x}{2y^3}$
64. $\frac{7xy}{x-2}\times\frac{x+2}{14y}=\frac{x(x+2)}{2(x-2)}$
65. $\frac{x^2-5}{2x^2-3}$
66. $\frac{3n}{(n+1)(n+5)}-\frac{4}{(n-8)(n+1)}=\frac{3n(n-8)-4(n+5)}{(n+1)(n+5)(n-8)}=\frac{3n^2-28n-20}{(n+1)(n+5)(n-8)}=\frac{(3n+2)(n-10)}{(n+1)(n+5)(n-8)}$

67. $\frac{(2x-1)(x-6)}{(x+3)(x-6)}+\frac{(x+4)(x+3)}{(x+3)(x-6)}+\frac{3x-1}{(x+3)(x-6)}$
$=\frac{3x^2-3x+17}{(x+3)(x-6)}$

68. $\frac{2x+x(x^2+1)-(x^3+x^2+x+1)}{(x-1)(x+1)(x^2+1)}$
$=\frac{2x-x^2-1}{(x-1)(x+1)(x^2+1)}$
$=\frac{-(x-1)^2}{(x-1)(x+1)(x^2+1)}$
$=\frac{1-x}{(x+1)(x^2+1)}$

69. $\frac{(t-3)(t-5)+2t^2+19t-46-(t+4)(2t+1)}{(2t+1)(t-5)}$
$=\frac{t^2+2t-35}{(2t+1)(t-5)}$
$=\frac{(t-5)(t+7)}{(2t+1)(t-5)}$
$=\frac{t+7}{2t+1}$

70. $\frac{n(n^2-1)}{(n^2+1)(n^2-1)}+\frac{n^2+3n}{(n^2+1)(n^2-1)}-\frac{(n+1)(n^2+1)}{(n-1)(n+1)(n^2+1)}$
$=\frac{n^3-n+n^2+3n-n^3-n^2-n-1}{(n-1)(n+1)(n^2+1)}$
$=\frac{n-1}{(n-1)(n+1)(n^2+1)}$
$=\frac{1}{(n+1)(n^2+1)}$

71. $\frac{x^3-25x+5-x^2+5x}{(x+5)(x-5)}=\frac{x^3-x^2-20x+5}{(x+5)(x-5)}$

72. $\frac{30x+9+3(3x-2)-(x+5)(4x+3)}{(4x+3)(3x-2)}=\frac{-4(x-3)(x-1)}{(4x+3)(3x-2)}$

73. $x(1+\frac{5}{x-2}-\frac{1}{(x-2)(x+2)})$
$x(\frac{x^2-4}{(x-2)(x+2)}+\frac{5x(x+2)}{(x-2)(x+2)}-\frac{1}{(x-2)(x+2)})$
$=\frac{x(6x^2+10x-5)}{(x-2)(x+2)}$

74. $\frac{15x^2-10}{(x-1)(5x-2)}-\frac{4(x+1)(5x-2)}{(x-1)(5x-2)}-\frac{2(x-1)}{(x-1)(5x-2)}$
$=\frac{15x^2-10-(20x^2+12x-8)-(2x-2)}{(x-1)(5x-2)}$
$=\frac{-5x^2-14x}{(x-1)(5x-2)}$
$=\frac{-x(5x+14)}{(x-1)(5x-2)}$

75. $\frac{(x+3)(x-2)+4x-3+(x-1)(x+10)}{(x+10)(x-2)}$
$=\frac{x^2+x-6+4x+x^2+9x-10}{(x+10)(x-2)}$
$=\frac{2x^2+14x-16}{(x+10)(x-2)}$
$=\frac{2(x+8)(x-1)}{(x+10)(x-2)}$

76. $\frac{2n^2}{(n^2-4)(n^2+4)}-\frac{n(n^2+4)}{(n^2-4)(n^2+4)}+\frac{(n-2)(n^2+4)}{(n+2)(n-2)(n^2+4)}$
$=\frac{2n^2-n^3-4n+n^3-2n^2+4n-8}{(n+2)(n-2)(n^2+4)}$
$=\frac{-8}{(n+2)(n-2)(n^2+4)}$

77. $\frac{3(x-1)+(x+5)(x+1)-3(x+1)}{(x+1)(x-1)}$
$=\frac{x^2+6x-1}{(x+1)(x-1)}$

78. $\frac{7-10(y-2)-3(y+8)}{y^2+6y-16}=\frac{7-10y+20-3y-24}{y^2+6y-16}$
$=\frac{3-13y}{y^2+6y-16}$

79. $\frac{4y(x-y)(x+3y)}{6xy(3x+y)(x-y)}=\frac{2(x+3y)}{3x(3x+y)}$

80. The numerator :
$xy + ay + bx + ab$
$= y(x + a) + b(x + a)$
$= (x + a)(y + b)$

The denominator :
$xy + ay + cx + ac$
$= x(y + c) + a(y + c)$
$= (y + c)(x + a)$

$\frac{xy+ay+bx+ab}{xy+ay+cx+ac}=\frac{y+b}{y+c}$

81. 25

82. E

83. 4

84. The diameter is c/π, the radius is $c/(2\pi)$. The area is $\pi r^2 = \pi(c/(2\pi))^2 = c^2/(4\pi)$.

85. $\frac{3a}{4b}=\frac{5b}{3c}=1 \Rightarrow$ a:b = 4:3 and b:c = 3:5 $\Rightarrow$ a:b:c = 4:3:5. Therefore, $\frac{3a+4b}{2b+5c}=\frac{12+12}{6+25}=\frac{24}{31}$

86. 4
$r:s = 2:3$

87. $0.2(1 + 0.1 + 0.01 + 0.1^{11}) \approx 0.2(1/0.9) = \frac{2}{9}$
As matter of fact, if you have learned repeating decimals, we know that $\frac{2}{9}= 0.2222\ldots$, close to the sum in the question.

88. 96
$\frac{\text{pole}}{\text{shadow}}=\frac{6}{4}=\frac{x}{64}$, reduce the fraction, you get $\frac{3}{2}=\frac{x}{64}$, then cross multiply, 2x = 192, x = 96

89. 6×5 = 30 outcomes
Everyone can be the chairperson, so there are 6 of them. Any other can be the vice chairperson, so there are 5 of them. Now, matching up these possibilities yields 6×5 = 30 outcomes.
Note: The answer is not $C_2^6 = 15$.

90. $3.30 \div 3\frac{2}{3} =$ \$0.90

91. The unit price is $\frac{d}{a}$, so with x dollars you can purchase $\frac{x}{d/a}=\frac{ax}{d}$

92. The circumference of the hoop is 7π, every revolution will roll a distance of 7π. Therefore, it takes 26 revolutions to make the distance 182π.
$182\pi \div (7\pi) = 26$

93. Note that 3 minutes = $\frac{1}{20}$ hour and also $\text{speed}=\frac{\text{distance}}{\text{time}}$, so the speed = $\frac{2}{\frac{1}{20}} = 40$ (miles).

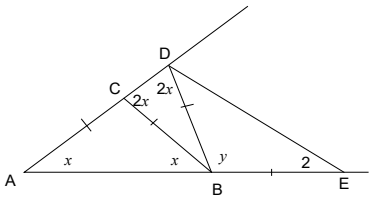
94. $90 - 1.5x$

$\angle BCD = 2x$ (exterior angle theorem)

$\angle BDA = \angle BCD = 2x$ (BC = BD)

$y = \angle DBE = \angle BAC + \angle BDA = 3x$

$\angle 2 = \frac{1}{2}(180 - y) = 90 - \frac{1}{2}y = 90 - 1.5x$



95. Since $f(x)=a(x+7)(x-1)$ and the function $y = f(x)$ also passes through $(-3, -10)$, which yields

$a(-3+7)(-3-1) = -10$

$\Rightarrow -16a = -10$

$\Rightarrow a = \frac{5}{8}$

Therefore, $f(5) = \frac{5}{8}(5+7)(5-1) = 30$.