Answer Key

1. N/A
2. N/A
3. N/A
4. N/A
5. N/A
6. N/A
7. N/A
8. N/A
9. N/A
10. N/A
11. 1
12. 7
13. 4
14. 13
15. 14
16. 11
17. 37
18. 54
19. 64
20. 70
21. 8
22. 4
23. 25
24. 31
25. 30
26. 14
27. 17
28. 27
29. 50
30. 40
31. 34
32. 6
33. 5
34. 7
35. 17
36. 14
37. 90
38. 26
39. 21
40. 4
41. 17
42. 13
43. 20
44. 19
45. 5
46. 13
47. 7
48. 13
49. 28
50. 13
51. N/A
52. N/A
53. N/A
54. N/A
55. N/A
56. N/A
57. N/A
58. N/A
59. N/A
60. N/A
61. 1
62. 7
63. 4
64. 13
65. 14
66. 11
67. 37
68. 54
69. 64
70. 70
71. 8
72. 4
73. 25
74. 31
75. 30
76. 14
77. 17
78. 27
79. 50
80. 40
81. 34
82. 6
83. 5
84. 7
85. 17
86. 14
87. 90
88. 26
89. 21
90. 4
91. 17
92. 13
93. 20
94. 19
95. 5
96. 13
97. 7
98. 13
99. 28
100. 13
101. $4 \times 4 = 16$
102. $64 - 8 = 56$ (books) left
103. $78 - 18 - 27 = 33$
104. $2.00
105. $70 + 10 = 80$
106. $50 + 20 = 70$
107. $10 + 20 = 30$
108. $12 + 8 = 20$
109. $5 \times 8 = 40$
110. $30 \div 5 = 6$

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Answer Key

1. $\frac{4}{6}$
2. $\frac{3}{5}$
3. $\frac{2}{4}$
4. $\frac{5}{7}$
5. $\frac{6}{7}$
6. $\frac{5}{6}$
7. $\frac{5}{6}$
8. $\frac{5}{6}$
9. $\frac{4}{5}$
10. $\frac{5}{6}$
11. 10
12. 6
13. 10
14. 90
15. 20
16. 90
17. 25
18. 10
19. 50
20. 20
21. 18
22. 16
23. 21
24. 17
25. 24
26. 11
27. 14
28. 27
29. 15
30. 17
31. 12
32. 32
33. 17
34. 35
35. 36
36. 18
37. 17
38. 28
39. 30
40. 26
41. 6
42. 7
43. 6
44. 18
45. 15
46. 45
47. 56
48. 56
49. 105
50. 104
51. 21 - 12 = 9
    12 - 9 = 3
52. 6÷2 = $3 (child's fare)
    2×6 + 3×3 = $21
53. 15×5 = 75 ft
54. 647

	7	5	**7**
-	1	**4**	9
	6	0	8

55. 5 - 2 = 3
    (a) 3÷2 = $1.50 (notebook)
    (b) 1.5 +2 = $3.50 (crayon)
56. 5:00 - 1:00 = 4 hrs
    4×40 = 160 pages
57. 24÷2 = 12 cookies (the third)
    12÷2 = 6 cookies (the first and second)
58. (a) 5×5 = 25 sq. inches
    (b) 4×4 = 20 inches
59. 7×7 = 49
    4×7 = 28 inches
60. 44 - 28 = 16
61. 63 - 55 = 8 inches
62. 45 - 18 = 27
63. 32 - 15 = 17
64. 84÷4 = 21 students
65. 6×15×7 = 90×7 = $630
66. 11 – 7 = 4 degrees (above zero)
67. 1,024 (Each number is 4 times greater than the previous one.)
68. 2×8 = 16

69. $120 \div 40 = 3$
    $3 \times 2 = \underline{6}$
70. $47 - 5 = 42$
    $42 \div 3 = 14$
71. $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$
72. $1 \times 2 \times 3 \times 4 \times 5 \times 6 = 720$
73. $2 \times 20 + 3 = \underline{43}$
74. $161 + 79 = 240$
    $240 \times \frac{2}{3} = \underline{\$160}$
75. $64 - 3 \times 8 = \underline{40 \text{ oz left}}$
76. Every 4 quarters equal to \$1.00
    $100 \div 4 = \$25$
77. $2.5 \times 0.2 = 0.5$
    $2.5 - 0.5 = 2$
    $6 \times 2 = \underline{\$12}$
78. $3 + 1 = 4$
    $4 \times 95 = \underline{380}$
79. $1 - \frac{3}{5} = \frac{2}{5}$
    $3 \div 2 = 1.5$
    $8 \times 1.5 = \underline{12 \text{ mi}}$
80. $240 \times \frac{1}{4} = 60$
    $240 - 60 = 180$
    $200 - 180 = \underline{\$20}$

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Answer Key

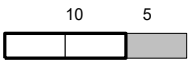
1. 9 1/4
2. 1 3/8
3. 4 1/2
4. 4 1/4
5. 5 1/8
6. 2 1/2
7. 4 2/9
8. 2 4/9
9. 3 5/6
10. 2 8/9
11. 2 2/5
12. 3 3/5
13. 3
14. 1 2/3
15. 9 1/3
16. 4 2/3
17. 12 1/3
18. 11 1/3
19. 10 1/2
20. 19 5/6

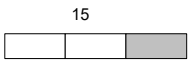
21. 0.5
22. 0.25
23. 0.5
24. 0.75
25. 0.125
26. 0.25
27. 0.375
28. 0.5
29. 0.625
30. 0.75
31. 1/10
32. 3/4
33. 1/5
34. 1/4
35. 1/2
36. 2 1/4
37. 1/2
38. 1/4
39. 3 3/4
40. 2 1/2

41. 1/3
42. 4/9
43. 3/7
44. 4/15
45. 8/9
46. 9/35
47. 1/2
48. 3/4
49. 18/25
50. 25/32
51. 8 1/2
52. 12 1/3
53. 7 1/4
54. 3 1/5
55. 4 4/5
56. 5 5/6
57. 6 1/8
58. 4 2/9
59. 3 1/10
60. 3 1/11

61. 38
62. 12
63. 14
64. 38
65. 42
66. 48
67. 62
68. 80
69. 33
70. 47 1/2
71. 2/3
72. 5/7
73. 9/10
74. 5/18
75. 18/25
76. 15/32
77. 28/45
78. 9/70
79. 2/3
80. 2/5

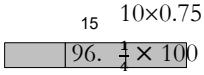
81. 3×2.60 + 4.20 = $12
82. 60÷2 = 30
    30×4 - 4 = 116
83. 3.5÷5 = $0.70
84. 3×12 = 36
    36÷2 = 18
    18 – 10 = 8
    8×10 = 80 sq. in.
85. (60 – 10) ÷ 2 = $25
86. 1.25 + 0.50 = $1.75
87. 2×1.25 = 2.50
    3×0.50 = 1.50
    1.50 + 2.50 = $4
88. 3.50×80 = $280
89. Do it backwards.
    10 + 5 = 15
    15×2 = 30 ft





90. 48×6 = 288 oz
91. 288÷32 = 9 qt
92. 7 – 1 = 6
    5 + 6×3 = $23
93. 300÷30 = 10
    2×10 = 20 min
94. 24÷3 = 8 rows
    15÷3 = 5 columns
    8×5 = 40 (plates)

The gray part are thrown away.



95. 2 × 5 = 10
    10×0.75 = $7.50
96. $\frac{1}{4}$ × 100 = <u>25 times</u>
97. 2,940÷7 = 420
98. 3×5 = 15
    15 – 2×4 = $7
99. 12 ÷ 4 = 3 in
100. 50 + 10 = 60
     60 ÷ 2 = $30

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Answer Key

1. 92
2. 82
3. 86
4. 90
5. 94
6. 88
7. 100
8. 108
9. 98
10. 102
11. 1/4
12. 7/8
13. 5/12
14. 3/20
15. 25/27
16. 21/40
17. 10/63
18. 14/75
19. 2/3
20. 5/7

21. 60
22. 12
23. 3.75
24. 300
25. 7000
26. 0.0375
27. 12.5
28. 7.5
29. 1.875
30. 0.25
31. 25/2 = 12 1/2
32. 29/3 = 9 2/3
33. 41/4 = 10 1/4
34. 31/5 = 6 1/5
35. 31/6 = 5 1/6
36. 64/7 = 9 1/7
37. 27/8 = 3 3/8
38. 65/9 = 7 2/9
39. 7/2 = 3 1/2
40. 35/11 = 3 2/11

41. 1/360
42. 11/21
43. 17/54
44. 23/45
45. 3/245
46. 37/300
47. 43/60
48. 51/40
49. 7/20
50. 9/200
51. 0.8
52. 3/20
53. 1.25
54. 9/20
55. 2.75
56. 17/20
57. 2 7/20
58. 2.4
59. 6 1/6
60. 20.2

61. 18 2/15
62. 39 4/35
63. 19 4/15
64. 36 4/15
65. 17 1/15
66. 17 1/7
67. 32 1/7
68. 51 7/18
69. 18 2/15
70. 18 1/5
71. 47/10
72. 6
73. 77/120
74. 12/35
75. 2/5
76. 15
77. 25
78. 14
79. 72
80. 27

81. 2/3
82. 2/5
83. 4+2/7=4 2/7
84. 18+3/5=18 3/5
85. 18+3/7=18 3/7
86. 38 2/9
87. 37 1/3
88. 42 1/2
89. 21 2/3
90. 95 1/3
91. 4 2/9
92. 3 5/6
93. 1 1/6
94. 12 1/9
95. 3 2/9
96. 24
97. 40 decades
98. \$5.20
99. 32 1/8
100. 9 1/12

101. $2\frac{1}{2} + 3\frac{2}{3} = 6\frac{1}{6}$ credits

102. $38\frac{3}{4} - 31\frac{1}{4} = 7\frac{3}{4} - \frac{1}{4} = 7\frac{1}{2}$ pounds

103. (a) 10×1.5 = \$15
(b) 10×40 + 15×5 = 400 + 75 = \$475

104. J = 12 and K = 18
Every group of five marbles, Jon receives 2 and Ken receives 3. There are 30÷5 = 6 groups, Jon receives 2×6 = 12 and Ken receives 3×6 = 18.

105. LCM(25, 30) = 150 minutes= 2 hours 30 minutes
1:10 + 2:30 = 3:40 pm

106. 1.20×9 = \$10.80

107. 24 ÷ 1.2 = 20 gal

108. Yes.
Since $1\frac{5}{8} + 1\frac{5}{8} = 3\frac{1}{4} < 3\frac{1}{3}$, she has braid long enough.

109. $10\times\frac{3.4}{8}$ = \$4.25

110. $13\frac{1}{2}\times12 \div 13\frac{1}{2} = 12$

111. 1 + 2 + 3 + … + 25
= $\frac{1}{2}\times25(1+25)$
= 325 couples

112. Savings:
Whole wheat: 1.50 – 1.25 = 0.25
Rye bread: 3.60 – 2.78 = 0.82
Corn muffin: 1.50 – 1.25 = 0.25
Biscuit: 1.80 – 1.25 = 0.55
0.25 + 0.82 + 0.25 + 0.55 = \$1.87

113. 35 – 19 = 16
16 ×1.05
= 8×2.1
= \$16.80

114. $3\frac{1}{2} + 2\frac{5}{8} = 6\frac{1}{8}$
7 cases will be needed.

115. 370÷74 = 5
5×3 = 15 gal

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Answer Key

1. $2x$
2. $2x$
3. $-2x$
4. $-3x$
5. $10x$
6. $7y$
7. $x + 9$
8. $10x - 4$
9. $10x + 5$
10. $19x - 5$
11. $-3x + 2y$
12. $5x - 3y$
13. $-16x - 4y - 1$
14. $-15x + 5y$
15. $3x - 7y$
16. $-x - 8y$
17. $6x - 4$
18. $-5x - 13$
19. $-6x - 5y$
20. $8x - y - 1$

21. 2, 4, 7, 8, 14, 28, 56
22. 2, 4, 8, 11, 22, 44, 88
23. 2, 4, 23, 46, 92
24. 3, 31, 93
25. 5, 19, 95
26. 2, 7, 14, 49, 98
27. 3, 9, 11, 33, 99
28. 2, 4, 5, 10, 20, 25, 50, 100
29. 7, 13, 91
30. {41, 43, 47, 53, 59}
31. 4 2/9
32. 3 5/6
33. 1 1/6
34. 12 1/9
35. 3 2/9
36. 1 7/8
37. 2 11/12
38. 2 4/9
39. 12 2/3
40. 2 11/15

41. 2
42. 2.2
43. –3.3
44. –0.5
45. –8.9
46. 5.2
47. –2.3
48. –7.1
49. –5.3
50. 0.4
51. 7
52. -43
53. -12
54. -14
55. 45
56. -16
57. -8
58. -14
59. -40
60. 7

61. 17
62. -4
63. 15
64. -43
65. 5
66. 3
67. -6
68. 1
69. 7
70. -2
71. $\frac{3}{8} = 0.375 = 37.5\%$
72. 12%
73. 120%
74. $2\frac{1}{4} = 2.25 = 225\%$
75. $3\frac{3}{4} = 3.75 = 375\%$
76. $1\frac{1}{5} = 1.20 = 120\%$
77. $5\frac{1}{2} = 5.50 = 550\%$
78. 352.5%
79. 157.5%
80. 276.25%

81. 3.2
82. –2
83. -5
84. -3
85. -2
86. -1
87. 1
88. 5
89. -4
90. 8
91. 50%
92. 25%
93. 12.5%
94. 6.25%
95. $7.50
96. 70%
97. 36
98. C
99. $240
100. $40.00

101. $24 \times 110\% = 24 \times 1.1 =$ $26.40
102. $25\% \times 24 = \frac{1}{4} \times 24 = 6$ hr
103. $120 \times 60\% = 120 \times 0.6 = 72$ lb
104. 25%
105. 50%
106. $1/16 = 6.25\%$
107. $\frac{1}{8} = 0.125 = 12.5\%$
108. $24 \times \frac{5}{6} = 20$
109. $25 \times (1 - \frac{2}{5}) = 15$
110. (a) $12 \div (1 + \frac{1}{2}) = 8$
(b) $12 \times (1 + \frac{1}{3}) = 16$

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Answer Key

1. 4.5
2. -1.6
3. 0.5
4. $\frac{5}{3}$
5. -2
6. 0
7. -14
8. -2
9. 1.5
10. 2
11. 4, 6
12. 7, 3
13. 9
14. 7
15. 24
16. 6
17. 3
18. 4
19. -81
20. 81

21. x^6
22. 9
23. $-8t^5$
24. $-81t^{12}$
25. $\frac{7}{x^7}$
26. $\frac{-3}{x^9}$
27. $\frac{0.008}{x^3}$
28. 384
29. 981
30. 2.3
31. $x^2 - 7x + 6$
32. $x^2 - x - 30$
33. $x^2 - 9x + 18$
34. $1.2x^2 - 4.8x - 14.4$
35. $15x^2 - 150x + 360$
36. $2.5x^2 - 7.5x - 45$
37. $1.5x^2 + 7x + 4$
38. $-2x^2 + \frac{1}{3}x + 4$
39. $12x^2 + 10x + 2$
40. $-3x^2 - 4.4x + 1$

41. 32, 80, 27
42. 8, –72, 18
43. 32, –112, 4
44. 18, 96, 22
45. 1, 1.2, 14
46. 1, 1, 0.8, –31.64
47. 1, 1, 0.9, 16.19
48. 2, 1, –0.5, 3.5
49. 2, 1, 0.3, 9.82
50. 2, 2, –3, –12
51. $30x^4y^4z^5$
52. $5x^5y^3z^5$
53. $\frac{4}{xyz^2}$
54. $\frac{1}{3y^2z}$
55. $1\frac{1}{2}x^3z$
56. $\frac{4}{5}xz^3$
57. $\frac{1}{10}\frac{1}{z}$
58. $15\frac{x^2}{y}$
59. $5x^3z^3$
60. x^4z^3

61. 1.2×10^{-2}
62. 2.25×10^{2}
63. 2.7×10^{-14}
64. 2.25×10^{10}
65. 2.16×10^{-4}
66. 3.5×10^{4}
67. 6.25×10^{5}
68. 2.56×10^{-7}
69. 1×10^{3}
70. 1.2×10^{-5}
71. 45%×600 = \$270
72. 270 ÷ 3 = \$90
73. 600 - 4×90 = \$240
74. \$3,640
75. 20%
76. 12%
77. 62%
78. 50
79. \$4,000
80. 7700

81. 1850 = 1000 + 850
1000×1% + 850×2%
= 1000×0.01 + 850×0.02
= 10 + 17
= \$27
82. 12% = 0.12
5000×0.12 = 600
or
600 ÷ 0.12 = \$5,000
83. 1 + 12% = 1.12
(original plus interest in a year)
2000×1.12 = 2240
or
2240÷1.12 = \$2000
84. 5.4 - 4.5 = 0.9
(increase)
$\frac{\text{change}}{\text{original}} = \frac{\mathbf{0.9}}{\mathbf{4.5}} = 0.2 =$ 20%
85. 6.4 - 4.8 = 1.6
(decrease)
$\frac{\text{change}}{\text{original}} = \frac{\mathbf{1.6}}{\mathbf{6.4}} = \frac{1}{4} = 0.25$
= 25%
86. 48 - 32 = \$16
16÷32 = 50%
87. $\frac{5000-4000}{4000} = \frac{1}{4} =$ 25%
88. 50%
89. 800 - 600 = 200
$\frac{200}{800} = \frac{1}{4} =$ 25%
90. 300000×80% =
3000×80 = 240,000
(240000÷100)×0.4 =
\$960

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Answer Key

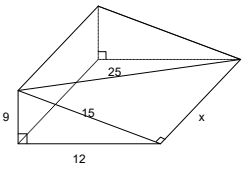
1. 4, 6
2. 7, 3
3. 9
4. 7
5. 24
6. 6
7. 3
8. 4
9. -81
10. 81
11. x^6
12. 9
13. $-8t^5$
14. $-81t^{12}$
15. $\frac{7}{x^7}$
16. $\frac{-3}{x^9}$
17. $\frac{8}{x^3}$
18. 384
19. 981
20. 2.3
21. 4.5
22. -1.6
23. 0.5
24. $\frac{5}{3}$
25. -2
26. 0
27. -14
28. -2
29. 1.5
30. 2
31. $y = -x + 4$
32. $y = -0.04x + 1.4$
33. $y = -1.2x - 0.4$
34. $y = \frac{4}{3}x - \frac{5}{3}$
35. $y = 0.4x - 1.2$
36. $y = -3x - 4$
37. $y = 2x - 12$
38. $y = 2.5x + 1.5$
39. $y = \frac{-3}{4}x + \frac{1}{2}$
40. $y = 6x + 4.8$
41. $x^2 - 7x + 6$
42. $x^2 - x - 30$
43. $x^2 - 9x + 18$
44. $1.2x^2 - 4.8x - 14.4$
45. $15x^2 - 150x + 360$
46. $2.5x^2 - 7.5x - 45$
47. $1.5x^2 + 7x + 4$
48. $-2x^2 + \frac{1}{3}x + 4$
49. $12x^2 + 10x + 2$
50. $-3x^2 - 4.4x + 1$
51. $30x^4y^4z^5$
52. $5x^5y^3z^5$
53. $\frac{4}{xyz^2}$
54. $\frac{1}{3y^2z}$
55. $1\frac{1}{2}x^3z$
56. $\frac{4}{5}xz^3$
57. $\frac{1}{10}\frac{1}{z}$
58. $15\frac{x^2}{y}$
59. $5x^3z^3$
60. x^4z^3
61. $(x - 4)(x + 6)$
62. $(x - 2)(x + 7)$
63. $(x - 1)(x + 9)$
64. $(x + 4)(x + 6)$
65. $(x + 9)(x + 5)$
66. $(x - 4)(x + 2)$
67. $(x - 3)(x - 2)$
68. $(x - 5)(x - 4)$
69. $(2x + 7)(x - 3)$
70. $(3x - 4)(2x - 3)$
71. $18x^2y^2z^2$
72. $50x^3y^6z^2$
73. $6x^2y$
74. $\frac{1}{10}\frac{1}{x^3y^5z^3}$
75. $\frac{3}{2}\frac{1}{y}$
76. $\frac{1}{5}\frac{1}{x^3yz^3}$
77. $3\frac{y^2}{z}$
78. $3\frac{3}{4}\frac{y^2}{xz}$
79. $\frac{3}{4}\frac{1}{x^3yz}$
80. $3\frac{1}{x^2z}$
81. 1.2×10^{-2}
82. 2.25×10^{2}
83. 2.7×10^{-14}
84. 2.25×10^{10}
85. 2.16×10^{-4}
86. 3.5×10^{4}
87. 6.25×10^{5}
88. 2.56×10^{-7}
89. 1×10^{3}
90. 1.2×10^{-5}
91. 121.5 ÷ 0.9 = 135
92. 48 – 40 = 8 hr (overtime)
    8×2 = 16 hr (normal hours equivalent)
    40 + 16 = 56 hr
    504 ÷ 56 = $9.00
93. 5×6 = 30 tickets
94. 2 + 3 = 5 hr
    60 + 60 = 120 mi
    $\frac{120}{5}$= 24 mph
95. $x = 14$ and $y = 2$
    $x + y = 16$
96. 546
97. 50 × 35% = 50×0.35 = $17.50
98. Tom would be $2x$ years old, and Harry, $2x+6$.
99. Dick + Tom + Harry
    $x+2x+2x+6 = 31$
    $5x + 6 = 31$
100. $x = 5$ (Dick)
     $2x = 10$ (Tom)
     $2x+6 = 16$ (Harry)
101. (31.2 – 24)/24 = 0.3 = 30%
102. 1×10 = 10 mi (distance)
     12 – 10 = 2 mph (faster)
     $\frac{10}{2}$ = 5 hr
103. Let x be newer one and 11 - x be the older one. In five years, we will have
     $11 - x + 5 = 3 + 2(x + 5)$
     $16 - x = 2x + 13$
     $3x = 3$
     $x = 1$ (younger)
     $11 - x = 10$ (older)
104. Let x be Abby's age, hence $x + 21$ be her mother's age. Then, we have
     $2(x + 10) - 3 = x + 21 + 10$
     $2x + 17 = x + 31$
     $x =$ 14 (years old, Abby)
     $x + 21 =$ 35 (years old, mother)
105. Let x children's tickets, so $(150 - x)$ adult's ticket be sold.
     $4x + 7(150 - x) = 690$
     $1050 - 3x = 690$
     $360 = 3x$
     $x = 120$ (children's ticket)
     $150 - x = 30$ (adults' ticket)
106. 1 + 60% = 1.6
     7500×1.6 = 12000
107. $32\times\frac{3}{4} = 24$ (Deloris)
     5×24 = 120 (Joe)

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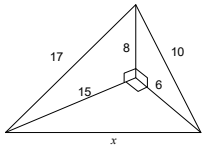
Answer Key

1. $\frac{x}{100}+\frac{y}{75}=1$
2. $y=\frac{4}{3}x$
3. (36, 48)

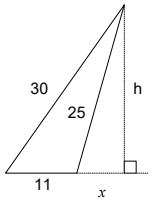
   Let P = (3*t*, 4*t*)
   $\frac{4t}{3t}=\frac{3t}{75-4t}$
   $300t-16t^2=9t^2$
   t = 12
   So, P = (36, 48)
4. 60
   (36, 48) = 12(3, 4)
5. $x^2+y^2=60^2$
6. 3750
7. 1350
8. 2400
9. 9:36
10. 125
11. 80
12. 45
13. (9, 12, 15) is a Pythagorean triple. (15, 20, 25) is another Pythagorean triple. x = 20



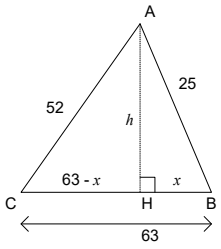
14. $x=3\sqrt{29}$



15. $5\sqrt{2}$
16. 13
17. 9
18. 5
19. $6\sqrt{3}$
20. AF = $\sqrt{2}$, AG = $\sqrt{3}$
21. $\frac{169}{2}\pi$
    x = 8
    $z=4\sqrt{13}$
    r = 13
    the area of the circle = 169π
    area of the semicircle = $\frac{169}{2}\pi$
22. 5
23. $\frac{3}{4}=\frac{4}{x}$
    $x=\frac{16}{3}=5\frac{1}{3}$
24. $\frac{3}{5}=\frac{4}{x}$
    $x=\frac{20}{3}=6\frac{2}{3}$
25. $3+5\frac{1}{3}=8\frac{1}{3}$
26. 3 : 4 : 5
    3 : 4 : 5
    3 : 4 : 5
27. 13
28. $\frac{5}{12}=\frac{12}{x}$
    $x=\frac{144}{5}=28\frac{4}{5}$
29. $\frac{5}{13}=\frac{12}{x}$
    $x=\frac{156}{5}=31\frac{1}{5}$
30. $5+28\frac{4}{5}=33\frac{4}{5}$
31. 5 : 12 : 13
    5 : 12 : 13
    5 : 12 : 13
32. 1
33. 2
34. 4
35. 0.5
36. 1.25
37. $1.25^2=1.5625$
38. Try to establish the following equation:
    $30^2-(11+x)^2=25^2-x^2$ ($=h^2$)
    $900-121-22x-x^2=625-x^2$
    $22x=154\Rightarrow x=7$
    $h=\sqrt{25^2-7^2}=24$



39. $\frac{1}{2}(11\times24)=132$
40. 12
    Let x = CH, then BH = $21-x$
    We have
    $20^2-(21-x)^2=13^2-x^2$ ($=h^2$)
    $42x=210$
    $x=5$
    $h=\sqrt{13^2-5^2}=12$
41. $\frac{1}{2}(h\times BC)=\frac{1}{2}(12)(21)=126$

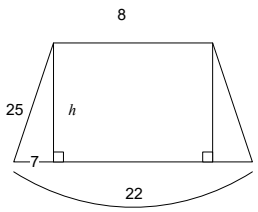


42. Try to establish the following equation:
    $52^2-(63-x)^2=25^2-x^2$ ($=h^2$)
    $2704-3969+126x-x^2=625-x^2$
    $126x=1890$
    $x=15$
    $h=\sqrt{25^2-15^2}=20$
43. $\frac{1}{2}(63\times20)=630$
44. BC = $\sqrt{12^2+5^2}$ = 13.
    $12^2=13\cdot x\Rightarrow x=12^2\div13=144/13$.
    $5^2=13\cdot y\Rightarrow y=25/13$.
    $13\cdot h=12\cdot5\Rightarrow h=60/13$.
45. $h^2=12\cdot3\Rightarrow h=6$
    $c^2=12\times15\Rightarrow c=\sqrt{180}=6\sqrt{5}$
    $b^2=3\times15\Rightarrow b=\sqrt{45}=3\sqrt{5}$.
46. $b^2=AH^2+CH^2\Rightarrow b=5\sqrt{5}$
    $b^2=5\cdot BC=5\cdot(5+x)\Rightarrow125=25+5x\Rightarrow x=20$.
    $c^2=BH\times BC=20\times25=500\Rightarrow c=10\sqrt{5}$.
47. $7^2=25\cdot y\Rightarrow y=49/25$
    $x=25-y=23.04$
    $c^2=25x\Rightarrow c=24$ or
    $c^2=\sqrt{25^2-7^2}=24$
    $25\cdot h=24\cdot7\Rightarrow h=6.72$
48. Solve x or y first. Since $y=25-x$, by Theorem B.4, $xy=h^2\Rightarrow x(25-x)=144\Rightarrow x^2-25x+144=0\Rightarrow(x-9)(x-16)=0\Rightarrow x=9$ or 16. We may choose x = 16 according to the figure. Henceforth, y = 9
    $c^2=x^2+12^2=400\Rightarrow c=20$
    $b^2=y^2+12^2=225\Rightarrow b=15$

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49. $h^2 = xy = 4\times1 = 4 \Rightarrow$
$h = 2$
$c^2 = \text{BH}\times\text{BC} = 20 \Rightarrow$
$c = 2\sqrt{5}$
$b^2 = \text{CH}\times\text{BC} = 5 \Rightarrow$
$b = \sqrt{5}$

50. In the right triangle, since h is the length of one leg, and the length of the other leg is $(22-8)\div2 = 7$, $h^2 = 25^2 - 7^2 = 576 \Rightarrow h = 24$. The area of the trapezoid is $\frac{1}{2}(8+22)\times24 = 360$



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