

Answer Key

1. $\frac{4}{4}$
2. $\frac{2}{6}$
3. $\frac{6}{6}$
4. $\frac{2}{4}$
5. $\frac{4}{5}$
6. $\frac{4}{4}$
7. $\frac{4}{4}$
8. $\frac{4}{4}$
9. $\frac{3}{5}$
10. $\frac{3}{4}$
11. 1
12. 2
13. 4
14. $\frac{1}{3}$
15. $\frac{1}{9}$
16. $\frac{2}{7}$
17. $\frac{3}{6}$
18. $\frac{4}{6}$
19. $1\frac{2}{8}$
20. $1\frac{3}{7}$
21. 8
22. 27
23. 90
24. 75
25. 9
26. 14
27. 30
28. 18
29. 6
30. 18
31. $\frac{11}{2}$
 $5 \times 2 + 1 = 11$
32. $\frac{28}{3}$
 $9 \times 3 + 1 = 28$
33. $\frac{17}{4}$
 $4 \times 4 + 1 = 17$
34. $\frac{23}{4}$
 $5 \times 4 + 3 = 23$
35. $\frac{18}{5}$
 $3 \times 5 + 3 = 18$
36. $\frac{23}{6}$
 $3 \times 6 + 5 = 23$
37. $\frac{26}{7}$
 $3 \times 7 + 5 = 26$
38. $\frac{39}{8}$
 $4 \times 8 + 7 = 39$
39. $\frac{26}{9}$
 $2 \times 9 + 8 = 26$
40. $\frac{59}{10}$
 $5 \times 10 + 9 = 59$
41. $5\frac{1}{2}$
 $11 \div 2 = 5 \text{ } r \text{ } 1$
42. $6\frac{1}{2}$
 $13 \div 2 = 6 \text{ } r \text{ } 1$
43. $7\frac{1}{2}$
 $15 \div 2 = 7 \text{ } r \text{ } 1$
44. $7\frac{1}{3}$
 $22 \div 3 = 7 \text{ } r \text{ } 1$
45. $7\frac{2}{3}$
 $23 \div 3 = 7 \text{ } r \text{ } 2$
46. $8\frac{1}{3}$
 $25 \div 3 = 8 \text{ } r \text{ } 1$
47. $7\frac{1}{4}$
 $29 \div 4 = 7 \text{ } r \text{ } 1$
48. $7\frac{3}{4}$
 $31 \div 4 = 7 \text{ } r \text{ } 3$
49. $4\frac{2}{5}$
 $22 \div 5 = 4 \text{ } r \text{ } 2$
50. $4\frac{4}{5}$
 $24 \div 5 = 4 \text{ } r \text{ } 4$
51. $\frac{3}{4}$
52. $\frac{3}{6} = \frac{1}{2}$ mile

MAP 230 (T1) Issue 12

53. $\frac{5}{8}$
54. $\frac{7}{5}$
55. $\frac{9}{8}$
56. $\frac{7}{6}$
57. $\frac{7}{10}$
58. $\frac{2}{12} = \frac{1}{6}$
59. $\frac{5}{6}$
60. $\frac{3}{4}$
61. 7
62. (a) $7 \times 2 = 14$
(b) $7 + 1 = 8$
63. $18 - 9 = 9$
64. $19 - 9 = 10$
 $10 \div 2 = \$5$
65. $1 + 4 = 5$
 $9 - 3 = 6$
or
 $3 + 6 = 9$
 $5 - 4 = 1$
66. 1 dollar = 4 quarters
 $4 - 1 = 3$
 $3 \times 7 = 21$ quarters
67. $80 \div 4 = 20$
 $20 - 5 = 15$
68. $1800 \times \frac{1}{3} = \600
69. $1 - \frac{2}{5} = \frac{3}{5}$
 $60 \div 3 \times 5 = 100$
70. $15 \times 6 = 90$ sq. inches
71. $36 \div 4 = 9$
 $9 \times 9 = 81$ sq. inches
72. $20 - 3 = \$17.00$
73. $320 \div 16 = \$20$
74. $315 - 133 = 182$
75. $5 \times 16 = 80$ sq. feet
76. $120 \div 4 = 30$ trees
77. $23 + 28 - 39 = 12$
78. $20 \times 12 \times 2 = \480
79. $10 \times 6 = 60$
 $60 + 35 = 95$
 $95 \times 20 = 1900 = \$19.00$
80. $2500 - 500 = 2000$
 $2000 \div 40 = 50$ lawns
81. $12:00 - 7:30 = 4:30$ or 4.5 hours
 $6 \times 4.5 = \$27$
82. $30 \times 2 = 60$
 $2 \times 60 = \$120$
83. $\frac{3}{30} = \frac{1}{10} = 1/10$
84. $1 - \frac{1}{3} = \frac{2}{3}$
 $15 \times \frac{2}{3} = 10$
85. $6 \times 12\frac{1}{2} = 75$
 $75 \div 5 = 15$ ounces
86. $18 \times 5\text{¢} = 90\text{¢}$
 $150 - 90 = 60$
 $60 \div 2 = \underline{30\text{¢}}$
87. $\frac{1}{2}(26) + 4 = 17$
 $26 - 17 = 9$
88. $4.5 \times 16 = \$72$
89. $9 \times 31 = \underline{279}$
90. $5 - 2.9 = 2.1$
 $2.1 \div 7 = 0.3$
 $5 - 3 \times 0.3 = \$4.10$
91. $35 + 3 = 38$
 $2 \times 38 = \underline{76}$
92. C
Think about 12 hot dogs
C: $2 \times 4 = \$8$ ✓
D: $3 \times 3 = \$9$
E: $4.25 \times 2 = \$8.50$
93. $46 = 25 + 20 + 1$
 $= 1$ quarter + 2 dimes + 1 penny
Ans = 4 coins
94. 22
95. $\frac{1}{3} \times 600 = 200$
 $600 - 200 = \underline{400}$
96. $24 \div 3 \times 2 = 16$
97. $2 \times 12 = 24$ inches
98. $5 \times 12 + 10 = 70$ inches
99. $\frac{1}{3} \times 12 = 4$
 $12 - 4 = 8$
100. 320 (Double each time.)

Answer Key

1. $\frac{25}{3}$
 $8 \times 3 + 1 = 25$
2. $\frac{13}{4}$
 $3 \times 4 + 1 = 13$
3. $\frac{19}{4}$
 $4 \times 4 + 3 = 19$
4. $\frac{37}{5}$
 $7 \times 5 + 2 = 37$
5. $\frac{55}{6}$
 $9 \times 6 + 1 = 55$
6. $\frac{32}{7}$
 $4 \times 7 + 4 = 32$
7. $\frac{21}{8}$
 $2 \times 8 + 5 = 21$
8. $\frac{52}{9}$
 $5 \times 9 + 7 = 52$
9. $\frac{87}{10}$
 $8 \times 10 + 7 = 87$
10. $\frac{61}{12}$
 $5 \times 12 + 1 = 61$
11. $5\frac{1}{2}$
 $11 \div 2 = 5 \text{ r } 1$
12. $6\frac{1}{2}$
 $13 \div 2 = 6 \text{ r } 1$
13. $7\frac{1}{2}$
 $15 \div 2 = 7 \text{ r } 1$
14. $7\frac{1}{3}$
 $22 \div 3 = 7 \text{ r } 1$
15. $7\frac{2}{3}$
 $23 \div 3 = 7 \text{ r } 2$
16. $8\frac{1}{3}$
 $25 \div 3 = 8 \text{ r } 1$
17. $7\frac{1}{4}$
 $29 \div 4 = 7 \text{ r } 1$
18. $7\frac{3}{4}$
 $31 \div 4 = 7 \text{ r } 3$
19. $4\frac{2}{5}$
 $22 \div 5 = 4 \text{ r } 2$
20. $4\frac{4}{5}$
 $24 \div 5 = 4 \text{ r } 4$
21. 2
22. 15
23. 24
24. 3
25. $\frac{3}{4} - \frac{1}{2} = \frac{1}{4}$
26. 8
27. \$12
28. $\frac{1}{3}$
29. 45
30. 12
31. 200, 2000
32. 300, 3000
33. 400, 4000
34. 500, 5000
35. 600, 6000
36. 4, 40
37. 5, 50
38. 6, 60
39. 7, 70
40. 8, 80
41. 0.14
42. 0.1
43. 0.03
44. 0.004
45. 0.014
46. 0.0021
47. 0.16
48. 0.032
49. 0.027
50. 0.04
51. B
52. A
53. B
54. D
 $91 \times 4 - 80 - 90 - 94 = 100$
55. B
56. A
 $11 + 12 + 13 + \dots + 19 = 5 \times 30$
 $1 + 2 + 3 + \dots + 9 = 5 \times 10$
 $5 \times 30 \div (50) = 3$

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57. B
 $10,740 \div 60 = 179$
58. B
59. A
60. B
61. A
62. C
63. C
64. A
65. B
66. D
 $3 \times 1 + 2 \times 2 + 3 = 10$
67. D
68. A
69. B
70. A
 3, 13, 23
 $\frac{3}{25} = 12\%$ about 10%
71. 0.008
72. $18 \div \frac{3}{4} = 24$ messages
73. $27.50 \times 2 - 2.00 + 2.50 + 17.25$
 $= 55 - 2 + 2.5 + 17.25$
 $= 55.5 + 17.25$
 $= \$72.75$
74. $6 \div 0.75 = 6 \div \frac{3}{4} = 8$ cans
75. $1 + 50\% = 1.5$
 $5 \times 1.5 = \$7.50$
76. $2500 \div 10 \times 3$
 $= 750$ min
 $= 12\frac{1}{2} = 12 \frac{1}{2}$ hr
77. $\frac{3}{4} \times 120 = 90$
 $\frac{2}{3} \times 120 = 80$
 $90 - 80 = 10$
78. $175 \div 25 = 7$
 $7 \times 120 = 840$
 or
 $\frac{175}{25} \times 120 = 840$
79. $\frac{1}{4} = 0.25 = 25\%$
80. $120 : \underline{\quad} = 4 : 1$
 $\underline{\quad} = 30$
81. $3 \times 5 = 15$
 $15 \times 6 = 90$
82. D
83. D
84. $(120 \div 8) \times 15 = 225$
85. Method I)
 $45 \times \frac{5}{3} = 75$ books
 Method II)
 $1 - \frac{5}{8} = \frac{3}{8}$ (unsold)
 $45 \div \frac{3}{8} = 120$ (total)
 $120 - 45 = 75$ (sold)
86. $7.5 \times 36 = 15 \times 18 = 30 \times 9 = \270
87. $40 \times 8 + 5 \times 12 = 320 + 60 = \380
88. $\frac{580 - 40 \times 10}{15} + 40 = 52$ hr
89. $8 - 12 - 6 = 2$
90. $50 \div 2 = 25$
 $90 \div 2 = 45$
 $25 + 45 = 70$
 $180 - 70 = 110$

Answer Key

- | | |
|---------------------------|---|
| 1. 25% | 43. .009 |
| 2. 12.5% | 44. .016 |
| 3. 20% | 45. 0.09 |
| 4. 10% | 46. .004 |
| 5. 5% | 47. .3 |
| 6. $\frac{7}{10}$ | 48. 40,000 |
| 7. $\frac{3}{4}$ | 49. 15 |
| 8. $\frac{25}{6}$ | 50. 24 |
| 9. $\frac{25}{9}$ | 51. F |
| 10. $\frac{20}{10}$ | 52. 0.24 |
| 11. 1.6 | 53. 36 |
| 12. 9 | 54. 8,000,000 |
| 13. 5 | 55. 0.008 |
| 14. 14.4 | 56. 0.027 |
| 15. 26 | 57. 0.064 |
| 16. 14.4 | 58. 3×5^2 |
| 17. 108 | 59. $\frac{1}{2}$ |
| 18. 54 | 60. $\Delta = 70$ |
| 19. 50% | 61. B |
| 20. 60% | 62. A |
| 21. 75% | 63. C |
| 22. 90% | 64. C |
| 23. 25% | 65. A |
| 24. 20% | 66. D |
| 25. 30% | 67. C |
| 26. 20 | 68. D |
| 27. 20 | 69. B |
| 28. 32 | 70. A |
| 29. 20 | 71. B |
| 30. 75 | 72. C |
| 31. $\frac{5}{20} = 25\%$ | 73. A |
| 32. 75% | 74. B |
| 33. 75% | 75. A |
| 34. 25% | 76. A |
| 35. 25% | 77. D |
| 36. 48 days | 78. A |
| 37. 32 | 79. B |
| 38. 6 | 80. A |
| 39. 20 | 81. $(12 \times 5)^2 = \underline{3600}$ |
| 40. 5 | 82. 14 |
| 41. 7.5 | 83. $(-3) \times (-4) + (-6) \times (-7) = 12 + 42 = 54$ |
| 42. 9 | 84. $\frac{60}{16} = \frac{15}{4} = 3\frac{3}{4} = 3\frac{3}{4} \text{ lb}$ |

MAP 250 (T1) Issue 12

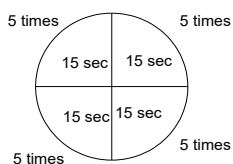
85. $2(100 + 1) = 202$

86. 25% (absent)
 $1 - 25\% = 75\%$ (present)
 $75\% = 3(25\%)$
 $3(5) = 15$ students (present)

87. $24 \times \frac{5}{6} = 20$

88. $(-3, -2)$

89. $60 \div 15 = 4$
 $5 \times 4 = 20$ times



90. C
 $25 + 35 + 30 = 90$
 $100\% - 90\% = 10\%$
 $300 \times 10\% = 30$

91. $200 \times \frac{1}{4} = \50

92. $200 \div \frac{4}{5} = 250$ or $200 + 50 = \$250$

93. 6 possible outcomes
 $(1, 2), (1, 3), (1, 4),$
 $(2, 3), (2, 4),$
 $(3, 4).$

94. $\frac{12}{4} \times 15 = 45$ mi

95. $\frac{\text{distance}}{\text{time}} = \frac{180}{3} = 60$ mph

96. $12 + 12 - 20 = 4$
 $4 \times 12 = 48$

97. $4(5) = 20$ ft²

5	5	5
5	5	5

98. Saturday : Sunday : weekdays
 $= 2:2:1$

$2000 \times \frac{4}{5} = 1600$

99. $35 \times 2 = 70$
 $94 - 70 = 24$

(a) $24 \div 2 = 12$ (rabbits)

(b) $35 - 12 = 23$ (chickens)

100. Let's use # of quarters for simplicity.

CP = Color pencil = 1 quarter = Q_1

DP = Drawing pencil = 2 quarters = Q_2

FT Felt-tip markers = 3 quarters = Q_3

Total = 10Q

Ans = 14 ways

FT | DP | CP

$Q_3 | Q_2 | Q_1 | \text{Tot}$

1	3	0	1	10Q
2	2	2	0	10Q
3	2	1	2	10Q
4	2	0	4	10Q
5	1	3	1	10Q
6	1	2	3	10Q
7	1	1	5	10Q
8	1	0	7	10Q
9	0	5	0	10Q
10	0	4	2	10Q
11	0	3	4	10Q
12	0	2	6	10Q
13	0	1	8	10Q
14	0	0	10	10Q

Answer Key

1. 2
2. -2
3. $\frac{4}{9}$
4. $\frac{5}{8}$
5. $\frac{5}{7}$
6. $\frac{6}{7}$
7. $\frac{7}{6}$
8. $\frac{4}{3}$
9. $\frac{-2}{3}$
10. $\frac{-2}{9}$
11. $x = -5$
12. $23/9$
13. $x = 8$
14. $x = 4$
15. $x = -2$
16. $x = 2$
17. $x = 1$
18. $-6\frac{1}{2} = -6.5$
19. $8/5$
20. $x = 2$
21. $x = .1$
22. $x = .2$
23. $x = .2$
24. $x = .3$
25. $x = .3$
26. $x = .3$
27. $x = -1$
28. $x = -40$
29. $x = -40$
30. $x = 7.2$
31. 6
32. 5
33. 7
34. 4
35. 7
36. 2
37. 5
38. 5
39. 5
40. 2
41. 1) 3
2) $y = 3x + b$
3) 3
4) $y = 3x - 7$
5) $5 = 3(4) - 7 \checkmark$
42. $b = 0$
43. $b = 7$
44. $b = -31$
45. $3(5) = 4(k) - 5$
 $k = 5$
46. 2
47. $y = 2x + b$
48. $b = 7$ (Use point A)
49. $y = 2x + 7$
50. $2(2) + 7 = 11$ (Check for point B)
51. $y = -7x + 25$
52. $y = \frac{1}{3}x - 3$
53. We have $y = -2x + b$ at beginning. Since it passes through $G(-4, -1)$, we can solve for b .
 $-1 = -2(-4) + b$
 $b = -9$
Thus, the equation is $y = -2x - 9$
54. They are the same line.
55. $y = 3x - \frac{3}{2}$
56. $y = -1.5x + 3$
57. $y = 3.6x + 4$
58. $y = 3x + 10$
59. $y = \frac{1}{5}x + 0.3$
60. $y = -2x - \frac{3}{2}$
61. $2x + 3y = 4$
62. $\frac{1}{2}x - 0.3y = -3$
63. $2x - 6y = 7$
64. $4x + 3y = -8$
65. It is already a standard form.
66. slope = 3
 $y = 3x + 2$
67. slope = -4
 $y = -4x + 3$
68. slope = 2
 $y = 2x - 4$

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69. slope = 36
y-intercept = 10

70. slope = -2.5
y-intercept = 3

71. slope = 3
y-intercept = $-\frac{3}{2}$

72. slope = $-\frac{3}{5}$
y-intercept = $\frac{6}{5}$

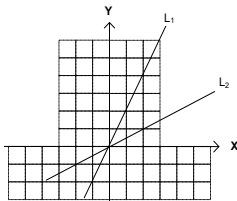
73. slope = $\frac{1}{2}$
y-intercept = 2.5

74. $y = 3x + 4$
 $3x - y = -4$

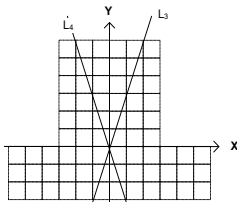
75. $y = \frac{3}{4}x + 10$
 $3x - 4y = -40$

76. $y = -\frac{3}{2}x + 0.3$
 $3x + 2y = 0.6$

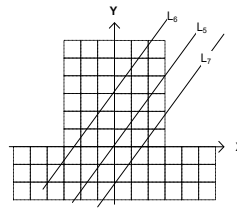
77. $y = -2x - 5$
 $2x + y = -5$



78.



79.



80.

81. $(\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6})^2 = (\frac{1}{6})^2 = \frac{1}{36} = 1/36$

82. 9

83. 5

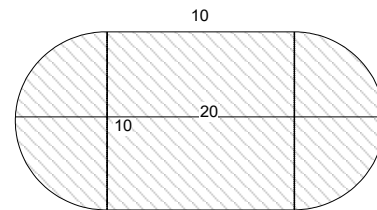
84. 16

85. $2,000 \times 0.8 = 1,600$
 $1,600 \times 0.05 = \$80.00$

86. $60 \times 20\% = 60 \times 0.2 = 12$
 $60 - 12 = \$48.00$

87. C
 $1 - 20\% = 0.8$
2nd time: $0.8 \times 0.8 = 0.64$
3rd time: $0.8 \times 0.64 = 0.512$
4th time: $0.8 \times 0.512 = 0.4096$

88. 20 yd



89. $420 \times .3 = \$126.00$

90. $80 \times 80\% = 80 \times .8 = \64.00

Answer Key

1. $x = .1$
2. $x = .2$
3. $x = .2$
4. $x = .3$
5. $x = .3$
6. $x = .3$
7. $x = -1$
8. $x = -40$
9. $x = -40$
10. $x = 7.2$
11. 6
12. 5
13. 7
14. 4
15. 7
16. 2
17. 5
18. 5
19. 9
20. 2
21. $6x^2 - 6x - 8$
22. $-6x^2 - 15x - 6$
23. $4x^2 - 11x - 25$
24. $-10x^2 - 21x + 10$
25. $-6x + 4$
26. $15 - 15x$
27. $2x + 2$
28. $-2 + 6x$
29. $2x^2 - 10x + 12$
30. $9x^2 - 11x + 6$
31. slope = 3, $y = 3x - 1$
32. D(4, -0.5)
Midpoint formula
 $D = \left(\frac{2+6}{2}, \frac{1+(-2)}{2}\right) = (4, -0.5)$
33. E(0.5, -1)
34. F(2.5, -2.5)
35. Yes
since slope(CF) $\times$ slope(AB) = -1
36. No since slope(AD) $\times$ slope(BC) $\neq$ -1
37. Change the standard form into slope intercept form we have $y = -2x + 4$ The slope is -2.
38. $y = -2x + 4$
39. $y = \frac{1}{2}x + \frac{3}{2}$
40. D(2, 0)
41. $x - 5y = 2$
42. $5x + y = 10$
43. $\frac{15}{4}$
44. $y = 6x - 17$
45. $y + 11 = -2(x - 2)$
 $y = -2x - 7$
46. $y + 4 = 3(x - 3)$
 $y = 3x - 13$
47. $y = \frac{5}{3}x + 1$
The intercept form is
 $\frac{x}{-3} + \frac{y}{5} = 1$,
which is equivalent to
 $\frac{y}{5} = \frac{x}{3} + 1$.
Thus,
 $y = \frac{5}{3}x + 1$ (the slope-intercept form)
48. The intercept form is
 $\frac{x}{-8} + \frac{y}{12} = 1$
 x -intercept = -8 and y -intercept = 12. The area described = $\frac{1}{2} \times 8 \times 12 = 48$
49. 13
50. 17
51. $y = -3x + 6$
52. $y = \frac{1}{2}x + 4$
53. $y = \frac{-4}{7}x - \frac{26}{7}$
54. $y = x + 1$
55. $\frac{x}{3} + \frac{y}{4} = 1$
56. $3x + 2y = -1$
57. $y + 3x - 6 = 0$
58. $x = 3$
59. 3
60. A(0, 1), B(3, 10)
61. $y = 3x + b$
 $5 = 3(2) + b$
 $b = -1$
 $y = 3x - 1$

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62. $y = 3x + b$
 $-2 = 3(5) + b$
 $b = -17$
 $y = 3x - 17$
63. $\frac{-1}{3}$
64. $y = \frac{-1}{3}x + b$
65. $y = \frac{-1}{3}x + b$
 $1 = \frac{-1}{3}(0) + b$
 $b = 11$
 $y = \frac{-1}{3}x + 1$
66. $y = \frac{-1}{3}x + b$
 $10 = \frac{-1}{3}(3) + b$
 $b = 11$
 $y = \frac{-1}{3}x + 11$
67. Parallel
 $1:-3 = -2:6$
68. Perpendicular
 $-\frac{2}{3} \times \frac{3}{2} = -1$
69. Parallel
70. Neither
71. Neither
72. Perpendicular
73. $4x - y - 8 = 0$
74. $4x + y = 0$
75. -0.027
76. 1
77. $4/3 = 1 \frac{1}{3}$
78. .007
79. 0.00032
80. $25/36$
81. 132
82. $3.14 \times .03 = .0942$
83. $2(x - 1) + 3(x + 1) = 6$
 $5x + 1 = 6$
 $x = 1$
84. $(1+\frac{1}{2})(1+\frac{1}{3})(1+\frac{1}{4})(1+\frac{1}{5})(1+\frac{1}{6}) = \frac{3}{2} \times \frac{4}{3} \times \frac{5}{4} \times \frac{6}{5} \times \frac{7}{6} = \frac{7}{2} = 7/2$
85. 8
86. 0.0025
87. 12
88. $7\frac{7}{10} = 7 \frac{7}{10}$
89. $80 \times 70\% = 80 \times 0.7 = \56
90. $25^2 = 20^2 + 15^2$
Ans = 20
91. $\frac{1}{2}(12) = 6$ in
92. $20 \times 1.5 = 30$
 $12 \times 30 = \$360$
93. $22 \times 14 \times 12 / 231 = 16$
Note $231 = 11 \times 21$
94. $273 \div 3 = 91$
 $91 \div 7 = 13$
 $273 = 3 \times 7 \times 13$
Ans = { 3, 7, 13 }

Answer Key

1. 4
2. 35
3. $-\frac{1}{3}$
4. 1.25
5. 3
6. $-\frac{4}{3}$
7. 6
8. -0.6
9. $\frac{2}{3}$
10. -0.8
11. $y = 4.5x + 2$
12. $y = -1.6x - 9.6$
13. $y = 0.5x + 2$
14. $y = \frac{5}{3}x + 9$
15. $y = -2x + \frac{1}{3}$
16. $y = -0.6x$
17. $y = -x - 2$
18. $y = 0.5x - 2$
19. $y = -5x + 6$
20. $y = 0.5x + 1.75$
21. $7/9$
22. $1/5$
23. 6
24. $-3/2$
25. $3/2$
26. $\frac{3}{4}$
27. $\frac{1}{3}$
28. $-\frac{3}{4}$
29. $-\frac{3}{4}$
30. 2
31. $-\frac{2}{3}$
32. $-\frac{3}{2}$
33. 4
34. 2
35. $\frac{1}{4}$
36. 3
37. $-\frac{1}{3}$
38. $\frac{1}{3}$
39. $\frac{3}{2}$
40. $-\frac{1}{2}$
41. $U = 80b + 100$; 7 hours
42. $C = 0.10m + 30$; \$75
43. $L = 60 - 5m$; 7 minutes
44. $G = 120 - 4b$; 30 hours
45. $d = 70b + 50$; 260 miles
46. $R = 3c + 80$; \$320
47. $C = 4v + 50$; 11 visits
48. $C = 0.50p + 200$; 500 pages
49. $S = 75w + 300$; \$900
50. $T = 68 - 3b$; 56°F
51. 10
52. 10
53. 4
54. 2
55. .02
56. 0.00072
57. 4
58. 2.1
59. $\frac{1}{3}n(n+1)(n+2) - \frac{1}{2}n(n+1)$
 $= n(n+1)(\frac{n+2}{3} - \frac{1}{2})$
 $= \frac{1}{6}n(n+1)(2n+1)$
 $= 385$
60. 714285
61. 1024
62. 7
63. $8\frac{11}{20} = 8.55$
64. 1224
65. 8600000
66. 0.7
67. 15.92
68. 15
69. 1, 1, 3
70. $8 + 4 + 6 + 8 + \dots + 20$
 $= 6 + 2 + 4 + \dots + 20$
 $= 6 + 11 \times 10$
 $= 116$
71. 78
 $30 \times 28 + 1 = 841$
72. 27

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73. $\Delta = 2$

74. $7 = 7^1$
 $49 = 7 \times 7 = 7^2$
 $243 = 7 \times 49 = 7^3$
 $1701 = 7 \times 243 = 7^4$
 $11907 = 7 \times 1701 = 7^5$
 $40353607 = 7^9 = 7^9$

75. 4×10^2
 Ans = 4 & 2

76. $((3 \times 9)^2)^3 = 27^6$
 $\square = 6$

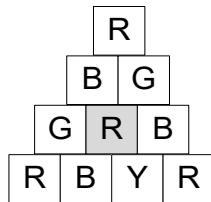
77. $3^{90} \div 3^{40} \div 3^{30} = 3^{90-40-30} = 3^{20}$
 $\square = 20$

78. 2.16×10^{14}

79. $-2a + 3(3) = 5 \Rightarrow a = 2$

80. $5n^2 - 13n = 6$
 $5n^2 - 13n - 6 = 0$
 $(5n+2)(n-3) = 0$
 $n = -0.4$ or 3

81. A



82. $(10 - 2) \times 180 = 1440^\circ$

83. $\angle ACB = 180^\circ - 130^\circ = 50^\circ$
 $x = 180^\circ - 2(50^\circ) = 80^\circ$

84. $30 + 40 = 70$
 $30 \times 0.6 + 40 \times 0.25 = 28 = 40\% \times 70$
 Ans = 40%

85. C
 $\frac{3}{5} = \frac{x}{10}$
 $x = 6$

86. Two triangles are similar.
 The area ratio is the side ratio squared
 $= (3 : 5)^2 = 9:25$

87. $30 \times 2 + 5 \times 2 + 4(15 - 5)$
 $= 60 + 10 + 40$
 $= 110$

88. Let x ounces of 3%-solution and $(85 - x)$ ounces of 19%-solution are mixed. Therefore, we have
 $x(3\%) + (85 - x)(20\%) = 85(19\%)$
 $3x + 20(85 - x) = 85 \times 19$
 $-17x = -85$
 $x = 5$ (oz)

89. D
 $\frac{2}{5} = 0.4 = 40\%$

90. E
 $0.4^2 = 0.16 = 16\%$

91. 50

92. 90