

Answer Key

1. $P = (-5, 0)$
2. $Q = (0, -3)$
3. $L_1: y = -3$
4. $L_2: x = -5$
5. No
6. Yes
7. Yes
8. Yes
9. Yes
10. No
11. $(1, 3)$
12. $(-1, 1)$
13. $(4, -1)$
14. $(46, 19)$
15. $(3/2, -1)$
16. $-14, 49$
17. $0.4, 0.04$
18. $(2x - 9)^2$
19. $(3x - 4)^2$
20. $25, (4x + 5)^2$
21. $16, 8, 17$
22. $25, -10, 15$
23. $4, -20, -10$
24. $25, -20, 28$
25. $2, 16, 19$
26. $9, 24, 13$
27. $8, -72, 18$
28. $2, -2, 4$
29. $27, 36, 11$
30. $12, -84, 9$
31. $3\sqrt{5}$
32. $3\sqrt{14}$
33. $4\sqrt{15}$
34. $6\sqrt{7}$
35. $4\sqrt{21}$
36. 8
37. 32
38. 2
39. 4
40. 4
41. 64
42. 1024
43. 5
44. 125
45. 3125
46. 5
47. 10
48. 15
49. 13
50. 26
51. 39
52. 65
53. $\sqrt{5}$
54. $2\sqrt{5}$
55. $5\sqrt{5}$
56. Assume x student tickets were sold. So, there were $1500 - x$ non-student tickets were sold. The total value of the tickets is
 $3x + 5(1500 - x) = 5000$
 $7500 - 2x = 5000$
 $x = \$1250$
57. $126 \div 180 = 0.7$
 $1 - 0.7 = 0.3 = 30\%$
58. $80 \div (30 - 10) = 4$ (hr)
59. $80 \div (30 + 10) = 2$ (hr)
60. $40 \div (30 - 10) + 40 \div (30 + 10) = 2 + 1 = 3$ (hr).
 $80 \div 3 = 26\frac{2}{3}$ (mph)
61. $8:24 = 1:3$
62. $\frac{4}{3x^2}$
63. $\{1, 2, 3, 4, 5, 6\}$, therefore the total number of outcomes is 6.
64. $\{2, 4, \text{ and } 6\}$ are multiples of 2, thus, the probability of getting an even number is $\frac{3}{6} = \frac{1}{2}$
65. $\{1, 2, 3, 4, \text{ and } 5\}$ are the expected outcomes. So,
 $P(\text{a number} < 6) = \frac{5}{6}$
66. $15 \div 3 = 5$ gallons
 $24 \div 5 = 4.8$ min = 4 min 48 sec
67. Let x : the length BC
 x : the length of DE
 x : the height EF
 Since the area of the parallelogram is twice the rectangle, we have
 $x^2 = 2(20x)$
 $x^2 = 40x$
 $x = 40$
 $20 \times 40 = 800$ cm² (area)
68. $4 \times 100 + 7 \times 20 = \540

MAP 280 (T2) Issue 2

69. $150 \times 4 = 600$ (assumed all children)
 $690 - 600 = 90$
 $7 - 4 = 3$
 $90 \div 3 = 30$ (adults)
 $150 - 30 = 120$ children
70. Let x be the length, and hence $\frac{1}{3}x - 2$, the width,
 $2(x + \frac{1}{3}x - 2) = 92$ (perimeter)
 $1\frac{1}{3}x - 2 = 46$
 $\frac{4}{3}x = 48$
 $x = \frac{3}{4} \times 48 = 36$ ft (length)
 $\frac{1}{3}x - 2 = 10$ ft (width)
 $36 \times 10 = 360$ ft² (area)
71. 3: 4
72. $3\frac{1}{2} \times \frac{3}{3+4} = \frac{3}{2}$ hr (A)
 $3\frac{1}{2} \times \frac{4}{3+4} = 2$ hr (B)
73. A = $\frac{3}{2} \times 4 = 6$ mi
or
B = $2 \times 3 = 6$ mi
74. 1
75. 48

Answer Key

1. $y = x + 4$
2. $y = 2x + 4$
3. $y = -\frac{2}{3}x + 2$
4. $y = -2x + 6$
5. $y = -2x - 2$
6. $y = -\frac{2}{3}x - 2$
7. $y = 4$
8. $\frac{x}{6} + \frac{y}{8} = 1$
x-intercept = 6 and y-intercept is 8.
9. x-intercept ($y = 0$) $12 \div 8 = 1.5$
y-intercept ($x = 0$) $12 \div -3 = -4$
10. Slope = $-\frac{3}{4}$, x-intercept = 4, y-intercept = 3
11. (-3, 1)
12. (24, -19)
13. (-3, 7/2)
14. (-5/2, 11/2)
15. (-1/3, 3)
16. 6, 9
17. -0.8, 0.16
18. $(2x + 9)^2$
19. $(4x + 1)^2$
20. 1, $(5x - 1)^2$
21. 36, -72, 26
22. 4, -48, 3
23. 64, -96, 11
24. 64, 96, 17
25. 16, 80, 15
26. 5, 1, -0.2, 3.8
27. 5, 2, -1, 14
28. 5, 1, -4, -61
29. 6, 2, -1, 20
30. 7, 1, -2, -3
31. $4\sqrt{5}$
32. $3\sqrt{14}$
33. $4\sqrt{15}$
34. $5\sqrt{11}$
35. $12\sqrt{2}$
36. 125
37. 6.25
38. 2
39. 16
40. 15.625
41. 1.25
42. 1.25
43. 0.5
44. 0.125
45. 0.03125
46. 6.5
47. 51
48. 112.5
49. $7\sqrt{10}$
50. $12\sqrt{13}$
51. $0.5\sqrt{2}$
52. $3\sqrt{26}$
53. $4.5\sqrt{29}$
54. $7\sqrt{34}$
55. $12\sqrt{41}$
56. 18
57. Incorrect, 25% instead
 $10 \div 40 = 0.25 = \boxed{25\%}$
58. $P(\text{heads or 3}) = \frac{7}{12}$
(What is the part of the shaded cells in the following table?)

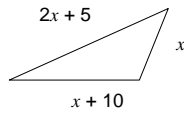
	1	2	3	4	5	6
H	H1	H2	H3	H4	H5	H6
T	T1	T2	T3	T4	T5	T6
59. 1 hr 45 min
 $1925 \div (500 + 600)$
 $= 1.75$ (hr)
 $= 1$ hr 45 min
60. Let the original price be x , then
 $0.8x = 60$
 $x = 60 \div 0.8 = \mathbf{\$75}$
61. Let x be amount invested at 12%, hence $12000 - x$ be the amount invested at 14%. Then, we have
 $12\%x + 14\%(12000 - x) = 1580$
 $.12x + 0.14(12000 - x) = 1580$
 $.02x = 100$
 $x = \$5000$ (at 12%)
 $12000 - 5000 = \$7000$ (at 14%)
62. $1 \div 4 = \frac{1}{4}$ (finished by Barb in an hour)
 $1 \div 2 = \frac{1}{2}$ (finished by her mother in an hour)
 $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$ (finished by them both)
 $1 \div \frac{3}{4} = 1\frac{1}{3}$ hours = 1 hour 20 min
63. 10
64. $26 \times 40 = 1040$ (miles)
 $1040 \div 20 = 52$ miles per hour

MAP 280 (T2) Winter Packet (See you back on 1/7)

65. $26 \text{ (men)} \times 40 \text{ (days)} = 1040 \text{ men-days} = 52 \text{ (men)}$
 $\times 20 \text{ (days)}$

66. $21 \times 5 \times 10 \times 9 \times 8$
 $= 21 \times 9 \times 400$
 $= 189 \times 400$
 $= 75600$

67. Assume the shortest side is x yards. The sides are shown in the following diagram.



Since the perimeter of the triangle is 135, we have

$$(2x+5)+(x+10)+x = 135$$

$$4x + 15 = 135$$

$$x = \boxed{30 \text{ yd}}$$

$$2x + 5 = \boxed{65 \text{ yd}}$$

$$x + 10 = \boxed{40 \text{ yd}}$$

68. $30 - 25 = 5$
 $5 \div 25 = 0.2 = 20\%$

69. $\frac{4}{12} = \frac{1}{3}$ (She accomplishes $\frac{1}{3}$ of the whole job in 4 days.)
 $1 - \frac{1}{3} = \frac{2}{3}$
 $\frac{2}{3} \times 24 = 16 \text{ (days)}$

70. $10:25 = 2:5$

71. \$44,100

72. Let x be the ones digit and $6 + x$ be the tens digit. The value of number is

$$x + 6 + x = 8$$

$$2x = 2$$

$$x = 1$$

Therefore, the number is 71

73. $\frac{77+45}{330} = \frac{122}{330} = \frac{\boxed{61}}{\boxed{165}}$

74. \$2,625

75. Boys:Girls = 12:8 = 3:2 (reduced)