

Answer Key

1. 5
2. 8
3. 11
4. 2
5. 8
6. 14
7. 5
8. 2
9. 8
10. 24
11. 16
12. 2
13. 18
14. 4
15. 36
16. 25
17. 2
18. 12
19. 6
20. 3
21. 15
22. 3
23. 27
24. 6
25. 35
26. 5
27. 9
28. 6
29. 54
30. 9
31. $12 - 5 = 7$
32. $30 \times 3 = 90$
33. $21 \div 7 = 3$ (wks)
 $3 \times 2 = 6$ pounds
34. $800 - 600 = 200$
 $200 \div 5 = 40$
35. $400 - 300 = 100$
 $100 \div 2 = 50$ (calf)
 $300 + 50 = 350$ (kg, cow)
36. $1 + 2 + 4 = 7$
 $28 \div 7 = 4$
 $1 \times 4 = 4$ (3rd)
 $2 \times 4 = 8$ (2nd)
 $4 \times 4 = 16$ (1st)
 $4 + 8 + 16 = 28$ (double-check)
Ans = 16 8 4 (Listed in order separated by space or comma)
37. $43 \div 3 = \underline{14}$ R1
Ans = 14 (pcs)
38. $35 \times 6 = \$210$
39. $0.3 \times 7 = \$2.10$
40. $8 \div 40 = 0.20 = 20 \text{ ¢}$
41. $75 \div 15 = 5$ plates
42. $392 \div 7 = 56$
43. $86 - 59 = \$27$
44. $15 \div 5 = 3$ pieces
45. $9 \times 2 \times 20 = 360$ rooms
46. $2 \times 0.85 = 1.70$
 $3 \times 0.90 = 2.70$
 $1.70 + 2.70 = 4.40$
 $5 - 4.40 = \$0.60$
47. $2 \times 24 + 14 = 62$
48. (a) $9:30 - 1:00 = 8:30$ P.M.
(b) 9:30 A.M.
49. $13:15 - 1:30 = 11:45$ A.M.
50. 16
51. $12.60 \times \frac{1}{2} = 6.30$
 $6.30 \times 5 = \$31.50$
52. D: $14 - 8 = 6$
C: $6 \div 2 = 3$
B: $10 - 3 = 7$
Ans = 7 B & 3 C and 6 D
53. 1 (Add $\frac{1}{4}$.)
54. $2 \times 26.5 = 53$
 $66 - 53 = 13$
55. $3 \times 6 = \underline{18 \text{ ft}}$
56. D
They all have the same number of pencils.
B: $\frac{1}{3}$
C: $\frac{1}{2}(1 - \frac{1}{3}) = \frac{1}{3}$
A: $1 - \frac{1}{3} - \frac{1}{3} = \frac{1}{3}$

MAP 230 (T1) Issue 5

57. A
Andrea has the least.
B: $\frac{1}{2}$
C: $\frac{1}{3}(1 - \frac{1}{2}) = \frac{1}{6}$
A: $1 - \frac{1}{2} - \frac{1}{6} = \frac{1}{3}$
58. $\frac{2}{3} \times 18 = 12$
 $12 \times 15 = \$180$
59. $4 \times \frac{1}{8} = \frac{1}{2}$
60. $\frac{1}{3} \times 24 = 8$
 $24 - 8 = 16$
61. C
62. $18 - 9 = 9$
 $36 - 9 = \underline{27}$
63. $6 \times 5 \times 4 = \underline{120 \text{ hours}}$
64. 1 more softball
65. David: $89 + 4 = 93$
Ashley: $\frac{1}{3} \times 93 = 31$
Stephen: $2 \times 31 = \underline{62 \text{ pounds}}$
66. B
67. $(3 + 4 + 5) \div 3 = 4$
68. $(13 + 15) \div 2 = 14$
69. $(26 + 20) \div 2 = 23$
70. $(80 + 100 + 95 + 85) \div 4 = 90$

Answer Key

1. 16
2. 32
3. 17
4. 95
5. 11
6. 150
7. 136
8. 20
9. 18,000
10. 0.06
11. 0.09
12. 0.96
13. 0.45
14. 0.4664
15. 8
16. 8
17. 9
18. $\frac{1}{3}$
19. 1, 2, 3, 4, 6, 12
20. 1, 2, 4, 5, 10, 20
21. B
22. A
23. A
24. B
25. D
26. D
27. C
 $400 - 209 = 191$
28. D
29. A
30. D
31. A
32. B
33. C
Year 2002, 2003, 2004
Celina: 18,000, 19,000, 20,000
Roger: 15,000, 17,500, 20,000
34. D
35. A
36. A
37. D
38. C
 $30 = 1 \times 30$
 $= 2 \times 15$
 $= 3 \times 10$
 $= 5 \times 6$
39. C
40. A
41. 4
42. 5.07
43. 9
44. 23
45. $728 \div 8 = 91$
46. 12 cm
47. 46
48. $205 - 30 = 175$
 $175 - 25 = 150$
 $150 - 20 = 130$
 $130 - 15 = 115$
49. 0.68
50. $14 \times 3 = 42$
51. $4,128 - 1,839 = 2289$
52. $8 \div 2 = 4$
Liz = $16 + 4 = 20$
Melissa = $16 - 4 = 12$
53. $4:15 + 1:00 = 5:15$
54. $1200 \times 3 + 1500 \times 2 = 3600 + 3000 = 6600$
55. $463 + 48 = 511$
56. $84 \div 3 = 28$ min
57. $\frac{4}{7}$
58. $3 \times 3 + 2 \times 2 = \13
59. $20 - 3 \times 3 = \$11$
Ans = 5 packs of paper
60. 8
12 (A) & 5 (B) & 9 (C)
61. 0.0024
62. $\square = 3$
63. 40500
64. 16
65. 145
66. $\frac{75}{6} = \frac{25}{2} = 12\frac{1}{2} = 12 \frac{1}{2}$
67. $7 \times 60 = 420$
 $\frac{1}{2} \times 60 = 30$
 $420 + 30 = 450$ min

68. $1/6$

70. 50 times

69. $\frac{65}{4} = \boxed{16\frac{1}{4}} = 16\frac{1}{4}$

Answer Key

1. 0.16
2. 6.25
3. .014
4. 0.1
5. 0.054
6. .00008
7. $\frac{1}{5} = 1/5$
8. 60
9. $240 \div 6 = 40$
10. $3 \times 37 = 111$
11. 9,000
12. 12
13. 0.1107
14. 3087
15. 1,000
16. 5.7
17. 0.07
18. 25%
19. 250%
20. $33\frac{1}{3}\%$
21. C
22. 1280
23. B
24. C
25. B
26. C
27. B
28. C
29. B
30. C
31. B
32. A
33. B
34. D
35. B
36. C
37. C
38. B
39. D
40. C
41. 10
42. 8 & 3 (R)
43. 2
44. $9^3 = (3^2)^3 = (3^3)^2 = 27^2$
 $\square = 2$
45. 23
46. $\frac{5}{24} = 5/24$
47. A = 39
48. 31
49. $8 \times 4 = 32$
50. $120 \div 40 = 3$
 $1 \text{ min } 30 \text{ sec} = 1.5 \text{ min}$
 $3 \times 1.5 = 4.5 \text{ min}$
51. $300 \div 40 = \frac{15}{2}$
 $\frac{15}{2} \times 1\frac{1}{2} = \frac{15}{2} \times \frac{3}{2} = \frac{45}{4} = 11\frac{1}{4} = 11 \text{ min \& 15 sec}$
52. $38 \div 2 = 19$ (half-perimeter)
 $19 - 10 = 9$
 $10 \times 9 = 90 \text{ in}^2$
53. D = 5
C = 10
B = $10 + 2 = 12$
A = $12 + 6 = 18$
54. A
55. 125%
56. $1 = 1$
 $3 = 1 + 2$
 $6 = 1 + 2 + 3$
 $12 = 1 + 2 + 3 + 6$
 $1 + 3 + 6 + 12 = 22$
57. $8 \times 6 = 48$
 $\frac{1}{2} \times 48 = 24 \text{ in}^2$
58. Method I)
 $12.5 + 2 \times 7.25$
 $= 12.5 + 14.5$
 $= 27$

Method II)
 $12\frac{1}{2} + 2 \times 7\frac{1}{4}$
 $= 12\frac{1}{2} + 14\frac{1}{2}$
 $= 27$
59. 80
60. $50 + 75 = 125$
 $50 + 125 = 175$
 $175 \times 2 = \$350$
61. $32.5 \times (17 + 13) = 32.5 \times 30 = 325 \times 3 = 975$
62. $144\pi = 12^2\pi$
 $2 \times 12\pi = 24\pi = 24 \pi \text{ inches}$

MAP 250 (T1) Issue 5

63. $25 - 4 = 21$

$21 \div 25 = 84\%$

64. 12 for \$2

6 for \$1

18 for \$3

$18 - 12 = 6$ oranges added

65. $120:144 = 10:12 = 5:6$

66. $30 \div 5\% = 30 \div 0.05 = 3000 \div 5 = \600

67. $8 + 9 + 4 = 21$

See the steps below.

$21 - (9 + 5) = 7$

8		
9	7	5
4	n	

$21 - (4 + 7) = 10$

8		10
9	7	5
4	n	

$21 - (8 + 10) = 3$

8	3	10
9	7	5
4	n	

$21 - (3 + 7) = 11$

8	3	10
9	7	5
4	11	

68. $\text{LCM}(6, 10) = 30$

$\text{LCM}(30, 8) = 120$

69. D

70. $2(80 + 60) = 280$

$280 \div 10 = 28$ posts

71. C

For A: $12 \div 20 = 0.6$

For B: $18 \div 30 = 0.6$

Thus, both have the same steepness.

72. $25\% \times \$600 = \150

73. $600 + 150 = \$750$

74. 10 matches needed

RY, RG, RB, RW,

YG, YB, YW,

GB, GW, and

GB.

75. ① $9+8+7+6+5+4+3+2+1 = 99$, 7 addition signs.

② $9+8+7+6+5+4+3+2+1 = 99$, 6 addition signs.

Ans = 6

76. $Y = -1$

1		$Y = -1$
-4	-2	
-3		-5

77. $125 = 5^3$

$5^2 = 25 \text{ cm}^2$

78. (a) $\frac{8}{15} = 8/15$

(b) $\frac{8}{15} \times 300 = 160$

79. $3 \div 4 + 21 \div 4$

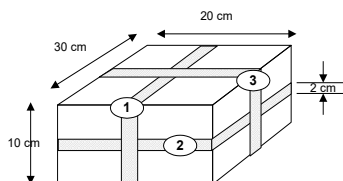
$= (2 + 21) \div 4$

$= 6$

80. $\frac{\text{discount}}{\text{original price}} = \frac{6}{24} = 0.25 = 25\%$

Answer Key

1. 1024
2. 144
3. 441
4. 169
5. 961
6. 10609
7. 5, 1024
8. 225
9. 2.25
10. 22500
11. 1.0201
12. 0.01
13. 0.0121
14. 256
15. 9
16. 8
17. 16
18. 1.6
19. 13
20. 1.3
21. B
22. A



Think of 3 winding stripes as the figure shows.

What is the total of their lengths?

Strip #1: $2 \times (10 + 30) = 80$

Strip #2: $2 \times (20 + 30) = 100$

Strip #3: $2 \times (10 + 20) = 60$

So, the total length is 240, the total area of these stripes are 480. However, there is an overlapping area on each face of the rectangular box, each with $2 \times 2 = 4$. So, $480 - 4 \times 4 = 456$.

23. B
 $(0.1^2)^3 = (0.1^3)^2 = 0.1^6$
24. B
25. C
 $a = 2 \times 3 = 6$
 $, b = 1 \times 3 = 3$
26. C

27. D
 $\frac{138 \times 12}{14904} = \frac{1}{9}$
 $9 - 1 = 8$
1:8
28. A
Assume the angle is x° . The supplement of it is $180 - x$ and the complement of it is $90 - x$. Thus,
 $180 - x = 30 + 3(90 - x)$
 $180 - x = 300 - 3x$
 $2x = 120$
 $x = 60$
29. B
30. A
31. C
32. C
33. C
The slope is 1.
34. C
 $a = \frac{1}{2}(3 + 15) = 9$
 $b = \frac{1}{2}(13 + 1) = 7$
The area of the rectangle is $9 \times 7 = 63$
35. D
 $450 + 4.5 = \boxed{454.5}$
36. A
37. D
 $5.99 + 3.01 = 9.00$
38. D
39. C
40. A
 $x = \frac{3}{4} \times 8^2 = 48$
41. $5\frac{1}{2} = 5 \frac{1}{2}$
42. $3\frac{7}{12} = 3 \frac{7}{12}$
43. 1.2
44. 6.4
45. $2\frac{1}{4} \text{ lb} = 2\frac{1}{4} \times 16 \text{ oz} = 36 \text{ oz.}$
46. $105 \text{ min} = 1 \text{ hr and } 45 \text{ min} = 1\frac{3}{4} = 1 \frac{3}{4} \text{ hr}$
47. 240,000
48. 3120000
49. $x = 9$
50. $1\frac{1}{2} \times 2\frac{2}{3} = \frac{3}{2} \times \frac{8}{3} = 4$
51. $\frac{1}{96}$
52. 135%
53. 10
 $79 \div 8 = 9R7$

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54. $7.5 \div 3 = 2.5$

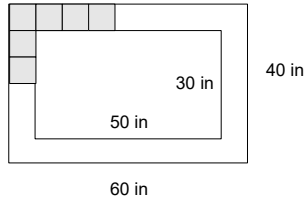
$2.5 \times 140 = 350$ miles

55. The sum is 36.

Dan is 24 and Anna is 12.

$D - A = 12$

56. $40 \times 60 - 1500 = 900 \text{ in}^2$

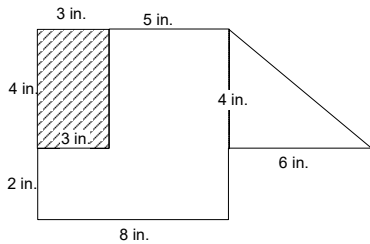


57. $1 - \frac{1}{3} - \frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$ (unsold)

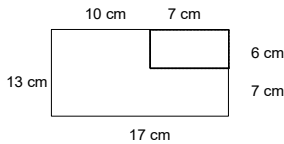
$1 - \frac{1}{3} = \frac{2}{3}$ (sold)

$50 \times 2 = 100$

58. $8 \times 6 - 3 \times 4 + \frac{1}{2}(4 \times 6) = 48 - 12 + 12 = 48$



59. $P = 2 \times (13 + 17) = 60$ (cm)



60. $1 + 20\% = 1.2$

$1.2 \times 12 = \$14.40$

61. $32.5 \times (17 + 13) = 32.5 \times 30 = 325 \times 3 = 975$

62. $144\pi = 12^2\pi$

$2 \times 12\pi = 24\pi = 24 \pi$ inches

63. $25 - 4 = 21$

$21 \div 25 = 84\%$

64. 12 for \$2

6 for \$1

18 for \$3

$18 - 12 = 6$ oranges added

65. $120:144 = 10:12 = 5:6$

66. $30 \div 5\% = 30 \div 0.05 = 3000 \div 5 = \600

67. $8 + 9 + 4 = 21$

See the steps below.

$21 - (9 + 5) = 7$

8		
9	7	5
4	n	

$21 - (4 + 7) = 10$

8		10
9	7	5
4	n	

$21 - (8 + 10) = 3$

8	3	10
9	7	5
4	n	

$21 - (3 + 7) = 11$

8	3	10
9	7	5
4	11	

68. $\text{LCM}(6, 10) = 30$

$\text{LCM}(30, 8) = 120$

69. D

70. $2(80 + 60) = 280$

$280 \div 10 = 28$ posts

71. C

For A: $12 \div 20 = 0.6$

For B: $18 \div 30 = 0.6$

Thus, both have the same steepness.

72. $25\% \times \$600 = \150

73. $600 + 150 = \$750$

74. 10 matches needed

RY, RG, RB, RW,

YG, YB, YW,

GB, GW, and

BW.

75. ① $9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 99$, 7 addition signs.

② $9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 99$, 6 addition signs.

Ans = 6

76. $Y = -1$

1		Y = -1
-4	-2	
-3		-5

77. $125 = 5^3$

$5^2 = 25 \text{ cm}^2$

78. (a) $\frac{8}{15} = 8/15$

(b) $\frac{8}{15} \times 300 = 160$

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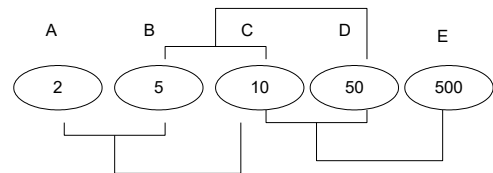
$$\begin{aligned} 79. \quad & 3 \div 4 + 21 \div 4 \\ &= (2 + 21) \div 4 \\ &= 6 \end{aligned}$$

$$80. \quad \frac{\text{discount}}{\text{original price}} = \frac{6}{24} = 0.25 = 25\%$$

Answer Key

1. $6\frac{1}{4} = 6 \frac{1}{4}$
2. $8\frac{1}{12} = 8 \frac{1}{12}$
3. 20
4. 25
5. $2\frac{22}{27} = 2 \frac{22}{27}$
6. 51
7. 20
8. 0.3
9. 6.25
10. 5
11. 400
12. $\frac{2}{5} = 2/5$
13. $\frac{14}{25} = \frac{56}{100} = \underline{56}\%$
14. 1.69
15. $\frac{16}{9} = 1 \frac{7}{9}$
16. 1.21
17. 11
18. 110
19. 1.3
20. 5 (for A) & 2 (for B)
21. B
22. 200
23. B
24. 10 inches
25. B
26. C
27. C
28. 87 (mi)
 $140 \times 0.62 = 86.80$
29. C
 $BD = 5$ since $5^2 = 3^2 + 4^2$.
 $AB = 13$ since $13^2 = 12^2 + 5^2$.
 $12 + \mathbf{13} + 4 + 3 = 32$
30. B
31. C
32. A
33. B
34. B
35. D
36. A
37. C

38. 27%
 $88x = 24, x = \frac{3}{11}$ or 27%
39. A
40. A
41. 0.0004
42. 36
43. 110
44. .098
45. 0.089
46. $\frac{14}{3} = 14/3$
47. $2^9 = 8^3$
48. -4
49. $x = 9$
50. $\frac{7}{10} = 7/10$
 $30\frac{1}{15}$
 $10\frac{5}{15}$
 $+ 20\frac{9}{15}$
 $60\frac{15}{15} = 61$
51. $\frac{7}{10} = 7/10$
 $30\frac{1}{15}$
 $10\frac{5}{15}$
 $+ 20\frac{9}{15}$
 $60\frac{15}{15} = 61$
52. x^{12}
 $\square = 12$
53. $54 \times 2 = 108$
 $54 \times \frac{1}{9} = 6$
 $108 + 6 = 114$
54. $6 \times 5 \div 2 = 15$ chords
55. $60 \times 5\% = 60 \times 0.05 = 3$
 $60 + 3 = \$63.00$
56. $\frac{1}{2} \times 6 \times 8 = 24$
57. $\triangle ABC = 30 = \frac{1}{2} \times BH \times AC = \frac{1}{2} \times BH \times 13$
 $BH = \frac{60}{13} = 60/13$
58. $63.75 \div 5 = \$12.75$
59. 19
60. 567 (cards)
See the following figure.



$$2 + 5 + 10 + 50 + 500 = 567$$

61. 0.0016

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62. 0.0625
63. 50
64. 6
65. $(20 \times 0.35)^2 = 7^2 = 49$
66. 122.5
67. Multiply both sides by 20:
 $.2(x - 1) - \frac{1}{4}x = 1$
 $4(x - 1) - 5x = 20$
 $-x = 24$
 $x = -24$
68. Multiply both sides by 2, we have
 $x - 1 + 6(x + 1) = 26$
 $7x = 21$
 $x = 3$
69. $1 - \frac{1}{8} - \frac{1}{4} - \frac{1}{3} = \frac{7}{24} = 7/24$
70. $\frac{12}{4} = 3$
 $3^3 = 27$
 $27 \div 3 = 9$ ft
71. $\frac{\text{increase}}{\text{original price}} = 40/200 = 0.2 = 20\%$
72. $\frac{5}{5 + \frac{5}{1.5}} = \frac{1}{1 + \frac{2}{3}} = 0.6 = 36$ min
73. $\frac{1}{2}(180^\circ - 48^\circ) = 66^\circ$
74. $2250 - 1250 = 1000$
 $1000 \div 1250 = 0.8 = 80\%$
75. The difference of the two bases = 12
 The height is 16.
 The area = $\frac{1}{2}(16)(4 + 16) = 160$
76. $2 \times 18 = 36$ (diameter of the outer circle)
 $\frac{1}{4} \times (36 \times 3.14) = 28.26$ m
 $2 \times 8 = 16$ (diameter of the inner circle)
 $\frac{1}{4} \times (16 \times 3.14) = 12.56$ m
 $28.26 + 12.56 + 20 = 60.82$ m
 Don't forget the two radii! ☺.)
77. $\frac{3}{4} \times (1 - \frac{2}{3}) = \frac{1}{4} = 1/4$
78. The full circle has an area of 64π . The sector is $\frac{40}{64}$
 $= \frac{5}{8}$ of the circle, so
 $360 \times \frac{5}{8} = 225^\circ$
79. $14^2 = 196$
 $15^2 = 225$
 $16^2 = 256$
 $17^2 = 289$
 $18^2 = 324$
 Ans = 3 perfect squares.
80. B
 Method I)
 $183 - 184 = -1$
 $183 - 178 = 5$
 $183 - 191 = -8$
 $183 - 167 = 16$
 $\frac{1}{4}(-1 + 5 - 8 + 16) = \frac{1}{4}(12) = 3$ lb (above)
- Method II)
 The average weight of the backfielders:
 $= \frac{1}{4}(184 + 178 + 191 + 167)$
 $= 180$
 $183 - 180 = 3$ (lb) above the average

Answer Key

1. true
2. $4 \times 256 = 1024$
3. $16 \times 243 = 3888$
4. $2 \times 2\frac{1}{4} = 4\frac{1}{2} = 4\frac{1}{2}$
5. 0.42
 $0.1 \times 0.2 = 0.02$
 $0.2 \times 0.3 = 0.06$
 $0.3 \times 0.4 = 0.12$
 $4 \times 0.5 = 2$
 ...
 $0.6 \times 0.7 = 0.42$
6. -4
7. 625
8. 1224
9. 4221
10. 0.0121
11. 1331000
12. 1.4641
13. 285714
14. $2^4 = 2^4$
15. 111,111,111
16. 35
17. $\frac{1}{2}$
18. 32
19. 39
20. $3 \times 5 \times 7 = 105$
21. 64
22. B
23. C
24. A
25. B
26. C
27. C
28. D
 $60 \times (1.6 - 1) = 36$
 $36 + 150 = 186$
29. C
30. C
31. C
32. 22.5
33. A
34. B
35. D
36. C
 $x - w$
 $= (x - y) + (y - z) + (z - w)$
 $= 5 + 10 + 15 = 30$
37. 220°
38. A
39. C
40. D
 They are 15, 20, **25**, 30, and **35**.
41. -125
42. $\sqrt{1\frac{2}{3} \times 3\frac{3}{4}} = \sqrt{\frac{5}{3} \times \frac{15}{4}} = \sqrt{\frac{25}{4}} = \frac{5}{2} = 2\frac{1}{2}$
43. -0.28
44. 0.4
45. $0.75 \times 200 = 150$ (from students)
 $250 - 150 = 100$ (from adults)
 $100 \div 1.25 = 80$ (adult tickets) were sold.
46. $4 \times 10 \times 10 \times 5 = 2000$
47. A
 $32 \times 16 = 512$
 $512 - \frac{1}{4}(256\pi)$
 $= 512 - 64\pi$
48. $\frac{1}{2} = \frac{1}{2}$
49. C
50. $24 \text{ min} = 0.4 \text{ hr}$
 $0.4 \times 5 = 2$
 $10 \times 5 = 50$ pages
51. $\frac{2}{8} = \frac{1}{4} = \frac{1}{4}$
52. $300 + 15 \times 80 = 1500$
53. B
 $500 + 10 \times 90 = 1400$
 Plan A: $1500 - 1300 = 200$
 Plan B: $1400 - 1300 = 100$
54. $12 \text{ min } 15 \text{ sec} = 12\frac{1}{4} \text{ min}$
 $8 \times 12\frac{1}{4} = 98 \text{ min} = 1 \text{ hr } \& 38 \text{ min}$
55. The total cost of the car:
 $9600 + 6900 = 16500$
 $16500 - 7500 = 9000$
 $9000 \div 3000 = \$3.00$
56. $15 + 20 = 35$
57. $80 \div 4 = 20$
 $60 \div 4 = 15$
 $20^2 - 15^2 = 400 - 225 = 175 \text{ sq. in}$
58. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4} = \frac{1}{4}$
59. C
60. D

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61. $\frac{22}{\frac{11}{4}} = 8$

62. $\frac{1}{64} = 1/64$

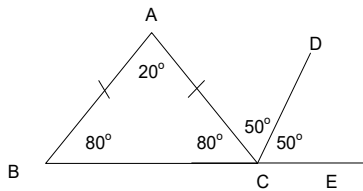
63. C
 $6xy - 20x - 20y$

64. $\square = -14$

65. $10 + 19 - 27 = 2$

66. It can be THH, HTH, or HHT. Each event has a probability of $\frac{1}{8}$, so the probability is $3 \times \frac{1}{8} = \frac{3}{8} = 3/8$

67. 20



68. $18 \text{ mon} = 1.5 \text{ yr}$
 $4\% \times 1.5 \times 1200 = 6\% \times 1200 = 72$
 $72 + 1200 = 1272$

69. $a:b:c = 6:4:3$
 $52 \div (6+4+3) = 4$
 $a = 4 \times 6 = 24$

70. $40 \times 2 = 80 \text{ miles}$
 $5 \text{ hr } 20 \text{ min} = 5\frac{1}{3} \text{ hr}$
 $80 \div 5\frac{1}{3} = 15 \text{ miles (faster per hour)}$
 $40 + 15 = 55 \text{ mph}$

71. $8 \times 7 \div 2 = 28$

72. 12

73. $\sqrt{37}$
 $\sqrt{37} = 6.08 \text{ (nearest 100th)}$

74. $1 + (-18x - 10x) = 57$
 $-28x = 56$
 $x = -2$

75. $\frac{30}{40} = \frac{3}{4} \text{ hr}$
 $\frac{40}{30} = \frac{4}{3} \text{ hrs}$
 $\frac{3}{4} + \frac{4}{3} \text{ hrs.}$
 Total distance: $30 + 40 = 70 \text{ miles.}$
 average speed = $\frac{\text{total distance}}{\text{total time}} = \frac{70}{\frac{4}{3} + \frac{3}{4}} = 33.6$

76. $2 + 4 \times 3 - 5 = 9$

77. $\frac{1}{10} \times 180 \times 8 = 144$

78. $\frac{1}{2} \times 10 \times (10 - 3) = 35$

79. $12 \times 5 = 60$
 $2 \times 9 = 18$
 $60 - 18 = 42$
 $42 \div 3 = 14$

80. Let x be the measure of $\angle C$.
 $\angle A + \angle B = 3x$.
 $x + 3x = 4x = 180$
 $x = \angle C = 45^\circ$