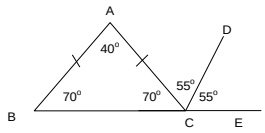
Answer Key

1. 2
2. -9.6
3. 2
4. 9
5. $\frac{1}{3}$
6. $(x - 4)(x + 3)$
7. $(x - 9)(x + 3)$
8. $(x - 8)(x - 3)$
9. $(x + 2)(x + 3)$
10. $(x - 3)(x + 6)$
11. $(2x + 3)(4x - 3)$
12. $3(2x + 3)(4x - 5)$
13. $-(6x - 7)(5x + 3)$
14. $-(3x - 8)(5x + 4)$
15. $-6(3x + 2)(4x - 3)$
16. $x^2 + 5x - 6$
17. $x^2 + 8x - 9$
18. $x^2 + 7x - 8$
19. $x^2 + x - 2$
20. $x^2 + 3x - 4$
21. $x^2 + 6x - 7$
22. $x^2 + 2x - 3$
23. $3x^2 + 28x + 32$
24. $2x^2 - 11x + 15$
25. $6x^2 - x - 1$
26. $x = 2$
27. $4(t + 5) = 3(t - 6)$
    $4t + 20 = 3t - 18$
    $t = -38$
28. $x = -2$
29. $x = 2$
30. $x = 1$
31. $t = 10$
32. $x = -2$
33. $x = -7$
34. $-0.5x - 4 = 5 - 1.5x$
    $\Rightarrow 2x = 9$
    $\Rightarrow x = 4.5$
35. $x=2$
    $0.5x = 1$
    $x = 2$
36. $4^6 = (4\times4)^3 = 16^3$
    Ans = 3
37. $\frac{4}{3} = 4/3$
38. $0.5x + 1 = 0.2x + 10$
    $0.3x = 9$
    $x = 30$
39. $17\div25 = 0.68 = 68\%$
40. 4 lb 6 oz = $4\frac{6}{16} = 4\frac{3}{8}$lb
    $0.4\times4\frac{3}{8} = \$1.75$
41. $60\div2 = 30$
    60 - 20= 10 (width)
    old area = $20\times10 = 200$
    Since each has the same increase,
    $40\div4 = 10$.
    new length = 20+10 = 30
    new width = 10+10 = 20
    new area = $30\times20 = 600$
    the increase of area is $600 = 200 = 400$ in^2
42. 485 + 55 = 540
    $540\div9 = \$60.00$
43. $120\times4 = \$480$ (regular)
    2,400 - 480 = \$1,920 (balcony)
    $1920\div8 = 240$ (balcony seats)
44. $3\frac{1}{2}\times5 = 17.5$
    $20\text{-}17.5 = 2\frac{1}{2} = 2\ 1/2$ in
45. $\frac{1}{2}(20^2 - 10^2)\pi$
    $= \frac{1}{2}\times300\pi$
    $= 300\times1.57$
    $= 471$ cm^2
46. $(x - \frac{1}{2})^2 = 16$
    $x - \frac{1}{2} = \pm4$
    $x = \frac{1}{2} \pm4 = 4\frac{1}{2}$ or $-3\frac{1}{2}$
    Ans = -3.5 & 4.5 (in increasing order)
47. A
48. $60/(\frac{1}{2}+\frac{3}{4}) = 48$ mph
49. 12 + 18 = 30
    25% + 15% = 40%
    $40\%\times30 = 12$
    12 - 3 = 9 more hits
50. 5 ft 4 in = $5\frac{1}{3}$ ft
    $5\frac{1}{3}$:6 = 16:18 = 8:9
51. 11
52. $-(-2)^3 = 8$
53. $x + 3 = \pm6$
    $x = -3 \pm 6 = -9$ or 3
54. $\square = 3$
55. -2

56. C
$(-y)(-y)^2(-y)^3(-y)^4(-y)^5 = -y^{15}$

57. 4 min = $\frac{1}{15}$hour
$\frac{\text{distance}}{\text{time}} = \frac{\frac{2}{3}}{\frac{1}{15}}$ = 10 mph

58. 180 - 2(180 - 2×55) = 40



59. Method I)
75% = $\frac{3}{4}$
(60+32)×$\frac{3}{4}$ = 69
69 – 49 = 29

Method II)
$\frac{40+x}{60+32} = 75\% = \frac{3}{4}$
160 + 4x = 276
4x = 116
x = 29

60. Since $MO^2 + MD^2 = OD^2$, we have
$3^2 + 4^2 = OT^2$
OT = 5 (radius)
Thus, the area is 25π = 25 pi

61. $\frac{18}{40}$=0.45 hour = 0.45×60 min = 27 min

62. B
3x - 2y = 13

63. B

64. 900÷6 = 150

65. $13^2 = 5^2 + 12^2$
BD = 12
(12, ___, 20) = 4(3, __, 5) = 4(3, 4, 5)
CD = 16
area(ΔABC) = ½(AC)(BD) = ½(12)(5 + 16) = 126

66. 12394

67. Alex's result:{17, 18, 19}
Ben's result:{15, 18, 30}
Comparisons of random selections are listed below. Shaded boxes are the desired outcomes. So, the probability is $\frac{4}{9}$ = 4/9

	17	18	19
15	✓	✓	✓
18	×	×	✓
30	×	×	×

68. 0
1.06×0.8 = 0.8×1.06
So, there is no difference.

69. Assume he bought
a pairs of \$1
b pairs of \$3
c pairs of \$4
$a + b + c$ = 12
$a + 3b + 4c$ = 24
In reduction, we have
$2b + 3c$ = 12
c = 2, b = 3, a = 7 pairs of \$1
Note: c = 4, b = 0, a = 8 (violation)

70. The radius is 2, so AC = 4.
area = $\frac{1}{2}$×4×4 = 8

71. Consider 6 pears and 6 oranges.
$\frac{16}{16+24} = \frac{16}{40}$ = 40%

72. The total area after folding
= 2×6×3 + 4×18 + 3×9
= 36+72+27
= 135
The area lost due to folding
= 4×9 = 36
Area of the original strip
= 135+36 = 171 = 3×57
The original length = 57 cm

73. 13, 26, or 39, …
7, 14, 21, 28, 35, …
26 and 28 are closest to be good candidates.
Let consider:26, 27, 28
26 = 2×13
$27 = 3^3$
$28 = 2^2 \times 7$
$26 \times 27 \times 28 = 2^3 \cdot 3^3 \cdot 7 \cdot 13$
26 + 27 + 28 = 81

74. From 1950 to 2049.
The median is the average
= $\frac{1}{2}$(1950 + 2049)
= $\frac{1}{2}$(2000+2000 - 1)
= 2000 – 0.5
= 1999.5

75. 4×0.25×20 = \$20