

Answer Key

1. $\frac{16}{81} = 16/81$
 2. -125
 3. -16
 4. $0.02 \times 16\% = 0.32\%$
 5. 12
 6. $18^2 = 324$
 $20^2 = 400$
 $22^2 = 484$
 $24^2 = 576$
Ans = 4 perfect squares
 7. $5(x - 2) = 4(x + 6)$
 $5x - 10 = 4x + 24$
 $x = 34$
 8. Multiply both sides by 28
 $12y + 14 = 7y$
 $5y = -14$
 $y = -14/5 = -2.8$
 9. $0.4 \times 15 = 6$
 $6 + 10 = 16$
 $\frac{16}{25} = 64\%$
 10. $12 \div 5 = 2.4 \text{ hr} = 2 \text{ hr \& } 24 \text{ min}$
Note that $0.4 \text{ hr} = 0.4 \times 60 = 24 \text{ min}$)
 11. 875
 12. $4 \times 40 = 160 \text{ mi}$
 13. $8 \text{ feet} = \frac{8}{3} \text{ yards}$
 $15 \text{ feet} = 5 \text{ yards}$
 $\frac{8}{3} \times 5 = \frac{40}{3} \text{ (sq. yards)}$
 $14.4 \times \frac{40}{3} = 4.8 \times 40 = \192
 14. $16\pi - 4\pi = 12\pi = 12 \text{ pi}$
 15. the length of the slant side = $13 (= \sqrt{5^2 + 12^2})$
 $11 + 11 + 23 + 6 + 13 = 64$
-
16. 12
 17. $2 \text{ hr } 40 \text{ min} = 2\frac{2}{3} \text{ hr}$
 $2\frac{2}{3} \times 360 = 720 + 240 = 960 \text{ miles}$
 18. C
 19. $6 \times 12 = 9 \times 8$
Ans = 8 (men)
 20. $36 \times 8 + 24 \times 9 = 504$
 $504 \div 224 = 2.25 = 2\frac{1}{4} = 2 \frac{1}{4} \text{ gal}$
 21. B
 22. D
 23. B
 24. C
 25. D
 26. A
 27. D
 28. C
 29. D
 30. A
 31. D
 32. B
 33. D
 34. A
 35. D
 36. A
 37. D
 38. D
 39. D
 40. B
 41. 0
 42. undefined
 43. 3
 44. -4
 45. $1/2$
 46. $(4z + 8)^2$
 47. $(4z - 8)^2$
 48. $(8x + 10)^2$
 49. $(8x - 10)^2$
 50. $(9y + 4)^2$
 51. $(-7y + 5)^2$
 52. $(3z - 1)^2$
 53. $(x^2 + 1)^2$
 54. $(4x - 3)^2$
 55. $(x - 1)^2$
 56. $(x - 1)(x + 1)$
 57. $(x - 2)(x + 2)$
 58. $(x - 3)(x + 3)$
 59. $2(x - 4)(x + 4)$
 60. $(2x - 9)(2x + 9)$

MAP 290 (T3) Issue 1

61. $2(5x - 3)(5x + 3)$
62. $(\frac{1}{2}x - 3)(\frac{1}{2}x + 3)$
63. $\frac{1}{3}(x - 3)(x + 3)$
64. $(x + 5)(x - 5)$
65. $(x + 10)(x - 10)$
66. 720
67. 5040
68. 40320
69. $5 \times 4 = 20$
70. 1
71. $6 \times 5 \times 4 \times 3 = 360$
72. 1
73. 1
74. $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 = 40320$
75. 24
76. $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 40320$
77. $9 \times 8 \times 7 \times 6 \times 5 = 15120$
78. ${}_8P_2 = 8 \times 7 = 56$
79. ${}_7P_3 = 7 \times 6 \times 5 = 210$
80. $6! = 720$
81. $5! = 120$
82. $4! = 24$
83. $(5!) \times 5 = 600$
84. $12!$
85. $10!$
86. $5! \times 5!$
87. 11 The white becomes $4 + 10 = 14$, the red should become 21, so $21 - 10 = 11$.
88. 22 The red goldfish total $10 + 38 = 48$, the white goldfish $= \frac{2}{3}(\text{red ones}) = \frac{2}{3}(48) = 32$, $32 - 10 = 22$.
89. 14 Let x be the number red ones, $20 - x$ be the white ones, we $\frac{10 + (20 - x)}{10 + x} = \frac{2}{3} \Rightarrow \frac{30 - x}{10 + x} = \frac{2}{3} \Rightarrow 90 - 3x = 20 + 2x \Rightarrow 70 = 5x \Rightarrow x = 14$.
90. 2 To attain the ratio of 3 : 2, the number of red ones must be a 3-multiple (why?), therefore, the largest number is 18 (8 more), the largest number of white ones is 12 (2 more).