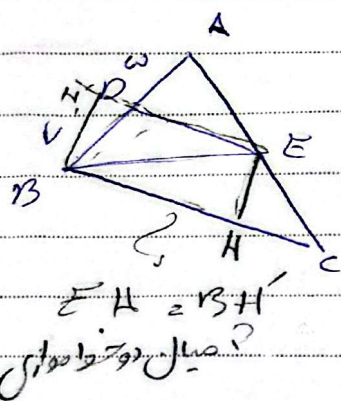


سوال ۱:

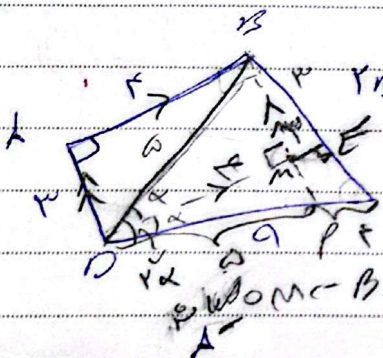


$$BC \parallel DE \Rightarrow \frac{AD}{AB} = \frac{DE}{BC} = \frac{1}{2}$$

$$\frac{S_{BCE}}{S_{BDE}} = ? \Rightarrow \frac{DE}{BC} = \frac{1}{2}$$

$$\frac{\frac{1}{2} \times EH \times 12}{\frac{1}{2} \times BH \times 12} = \frac{1}{2} \Rightarrow \frac{EH}{BH} = \frac{1}{2}$$

سوال ۲:

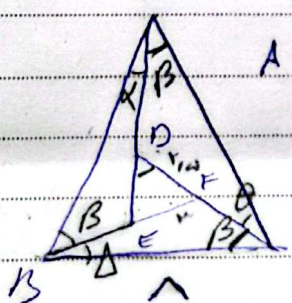


$$\angle BDM = \angle BDC$$

$$\frac{BM}{MD} = \frac{BE}{EC} = 1 \Rightarrow ME = EC$$

$$\frac{BM}{BD} = \frac{ME}{BE} \Rightarrow M = 2$$

سوال ۳:



$$\angle ABF = \angle CDE = \angle BCD$$

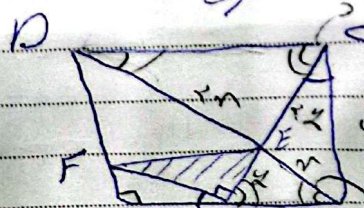
$$EF = 2 \quad DF = 1$$

$$\begin{aligned} \angle D &= \angle B + \angle C \\ \angle F &= \angle B + \angle C \\ \angle E &= \angle B + \angle C \end{aligned}$$

$$\frac{DF}{BC} = \frac{EF}{AB} \Rightarrow \frac{1}{2} = \frac{2}{AB} \Rightarrow AB = 4$$

$$\triangle DFE \sim \triangle ABC$$

سوال ۴:



$$M = \sqrt{12} \Rightarrow \sqrt{12} = \sqrt{12} \Rightarrow \sqrt{12} = \sqrt{12}$$

$$\angle BCE = \angle AMF$$

$$MB \parallel DC \Rightarrow \angle MEB \sim \angle CED$$

$$\frac{ME}{CE} = \frac{MB}{ED} = \frac{EB}{ED} = 1$$

$$M = \sqrt{12} \Rightarrow M = \sqrt{12}$$

$$MCB \sim FMA \Rightarrow \frac{AC}{FM} = \frac{MB}{FA} = \frac{CB}{MA} = 2$$

$$S_{FME} \rightarrow \frac{1}{2} \times \sqrt{12} \times \frac{\sqrt{12}}{2} = \frac{12}{2} = 6$$

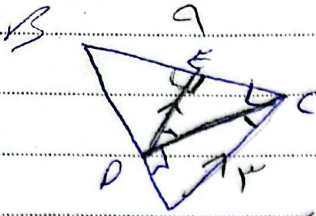
$$FM = \frac{\sqrt{12}}{2}$$

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$$C = 9 \cdot CD^2 = CE \times BC$$

$$AC = 10 \quad BC = 9$$

$$\frac{10^2}{10} \times \frac{1}{9} = CE = \frac{10}{9}$$

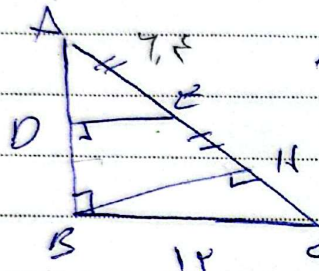
$$BC - CE = BE \rightarrow 9 - \frac{10}{9} = \frac{71}{9}$$

9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

$$AB^2 = 10^2 + 9^2 = 181$$

$$AB = \sqrt{181}$$

$$CA^2 = AD \times AB \rightarrow 9 = AD \times \sqrt{181} \rightarrow AD = \frac{9}{\sqrt{181}}$$



$$AB = 17 \quad AC = 40 \quad BC = 15$$

$$AB^2 = AC^2 + BC^2 \rightarrow 17^2 = 40^2 + 15^2$$

$$AB^2 = AH^2 + BH^2$$

$$BC^2 = HC^2 + BH^2 \rightarrow 15^2 = HC^2 + BH^2$$

$$AB^2 = (40 - HC)^2 + 15^2 = HC^2$$

$$17^2 = 1600 - 80HC + HC^2 + 225 = HC^2$$

$$17^2 - 1825 = -80HC$$

$$1842 = 80HC$$

$$HC = \frac{1842}{80} = 23.025$$

$$AE = 40 - 23.025 = 16.975$$

$$\frac{DE}{BC} = \frac{AD}{AB} = \frac{AE}{AC} \rightarrow DE = \frac{9 \times 16.975}{40} = 3.79$$

$$\frac{DE}{BC} = \frac{AD}{AB} = \frac{AE}{AC} \rightarrow DE = \frac{9 \times 16.975}{40} = 3.79$$

$$\angle A + \angle B = 90^\circ$$

$$BD^2 + DC^2 = BC^2 \rightarrow BC = 17\sqrt{2} = 2BE = 2EC$$

$$\rightarrow BE = EC = 17\sqrt{2}$$

$$\frac{1}{\sqrt{2}} = \frac{F}{AE} = \frac{17\sqrt{2}}{9} \rightarrow AE = 17$$

$$S_{ABE} = \frac{1}{2} AE \times BE = 144.5$$

