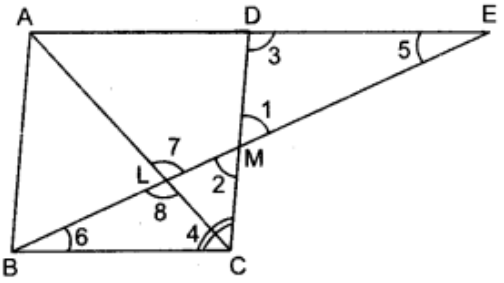
BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA
CLASS -X (MATHEMATICS)
Answer Key - Assignment 1(Triangles and Probability)

1.	(c) $BD.CD = AD^2$
2.	(a) 0.0001
3.	(c) 3/7
4.	**b) both assertion and reason are correct but reason is not correct explanation for assertion.**
5.	Here, AD/DB=AE/EC [Given] ⇒ DE || BC [By converse of Basic Proportionality Theorem] Now, ∠D = ∠B [Corresponding angle] ∠E = ∠C But ∠D = ∠E [Given] Hence ∠B = ∠C ∴ AB = AC [Sides opp. to equal angles of a Δ are equal] ∴ ΔBAC is an isosceles Δ.
6.	Here BA || XM ⇒ BN || XM and CA || XN ⇒ CM||XN Now in TMX, BN||XM ∴ By Corollary to B.P.T., we have TB/TX=TN/TM ……. (i) Again, in TMC, XN || CM By using corollary to B.P.T., we have TX/TC=TN/TM From (i) and (ii), we get TX/TC=TB/TX ⇒ $TX^2 = TB \times TC$
7.	**Proof:** In ΔMDE and ΔMCB DM = CM [Given] ∠1 = ∠2 [Vertically opposite] ∠3 = ∠4 [∵ BC || AE and DC is a transversal] [Alt. int ∠s] ∴ ΔMDE ≅ ΔMCB [ASA Congruency] DE = BC [CPCT] ... (*i*) Also BC = AD ... (*ii*) (Opposite sides of the parallelogram) ∴ AD = DE [On equating (*i*) and (*ii*)] Now, AE = AD + DE ⇒ AE = 2AD [Put DE = AD] 

	In ΔBLC and ΔELA, $\angle 5 = \angle 6$ [Alt. int. angles] and $\angle 7 = \angle 8$ [Vertically opposite angles] $\therefore \Delta BLC \sim \Delta ELA$ [AA similarity] $\Rightarrow \frac{BL}{EL} = \frac{LC}{LA} = \frac{BC}{AE} \Rightarrow \frac{BL}{EL} = \frac{BC}{AE} \Rightarrow \frac{BL}{EL} = \frac{BC}{2AD}$ $\Rightarrow \frac{BL}{EL} = \frac{AD}{2AD}$ [$\because$ BC = AD $\Rightarrow \frac{BL}{EL} = \frac{1}{2} \Rightarrow EL = 2BL$
8.	Case study: Since, every student get one chocolate. So, number of chocolates Rohit has is equal to the number of students in the class. (a) Let number of milk chocolates Rohit has = x Probability of distributing milk chocolates = 1/3 x/54 = 1/3 x = 18 (b) Let number of dark chocolates Rohit has = y Probability of distributing dark chocolates = 4/9 y/54 = 4/9 y = 24 (c) Number of white chocolates Rohit has = 54 -(18 + 24) = 12 Required probability =12/54 = 2/9