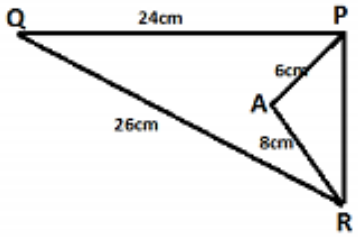
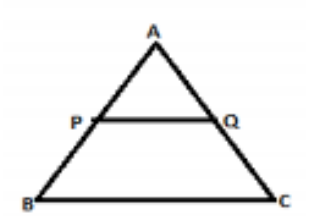
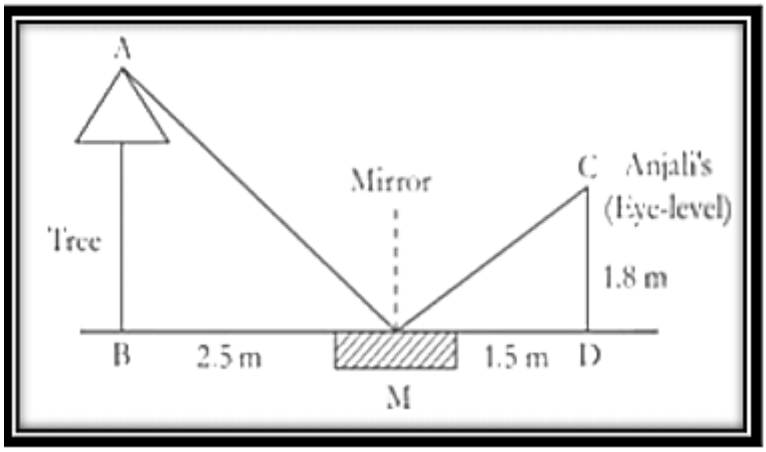
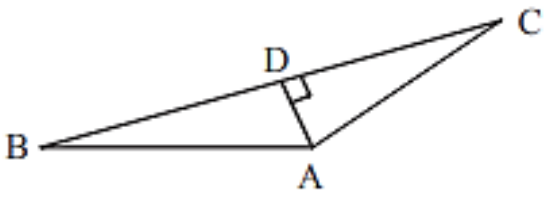
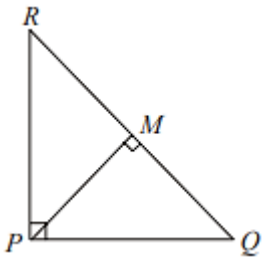
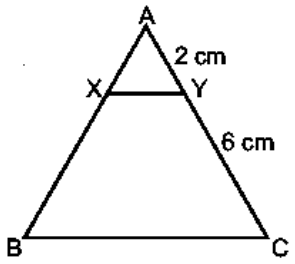
INDIAN SCHOOL AL WADI AL KABIR

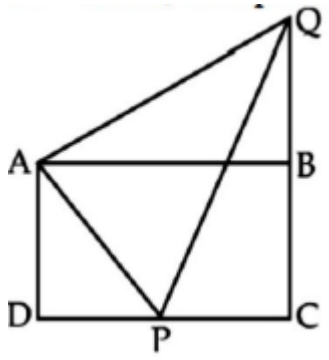
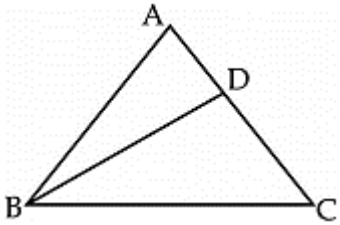
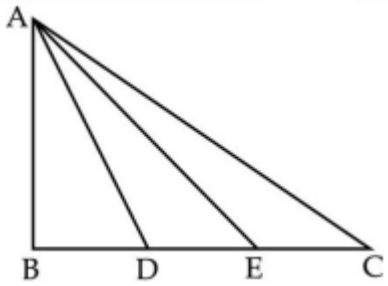
Department: Mathematics

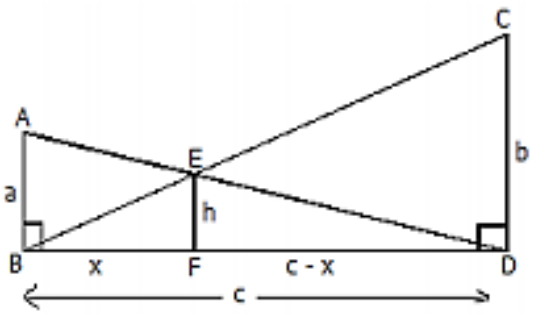
Class X **Worksheet – Triangles** **10-06-2021**

	1mark questions
Q.1.	In the fig, PQ=24cm, QR=26cm, ∠ PAR=90°,PA = 6cm and AR = 8cm. Find ∠ QPR. 
Q.2.	In the fig, PQ ‖ BC and AP: PB = 1:2, find the ratio of ar (Δ APQ) to ar (Δ ABC). 
Q.3.	In Δ DEW, AB ‖ EW. If AD = 4 cm, DE = 12 cm and DW = 24 cm, then find the value of DB.
Q.4.	In ΔABC, AB = $6\sqrt{3}$ cm, AC = 12 cm and BC = 6 cm, then find the measure of ∠B.
Q.5.	If ΔABC ~ Δ DEF such that AB = 1.2 cm and DE = 1.4 cm, then find the ratio of the areas of ΔABC and ΔDEF.
	Case study-based question (1 x 4 = 4 marks)
Q.6.	Teacher gives an activity to the students to measure the height of a tree and asks them who will do this activity. Anjali accepts the challenge. She places a mirror on level ground to determine the height of the tree. She stands at a certain distance so that she can see the top of the tree reflected from the mirror. Anjali's eye level is 1.8 m above ground. The distance of Anjali and the tree from the mirror are 1.5 m and 2.5 m respectively.

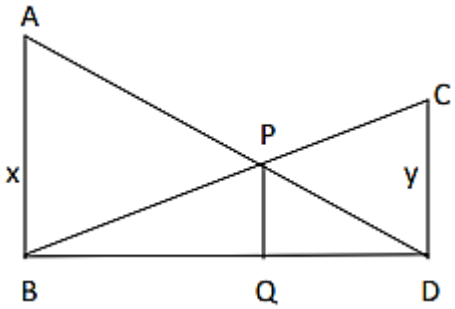
	
(a)	Refer to the figure and identify the similar triangles: (i) ΔABM~ΔCDM (ii) ΔABM~ΔCMD (iii) ΔABM~ΔMCD (iv) None of these
(b)	The similarity criteria applied to prove the similarity of triangles is: (i) SSS (ii) SAS (iii) AA (iv) None of these
(c)	The height of the tree is: (i) 3 m (ii) 3.5 m (iii) 2.5 m (iv) 4m
(d)	In ΔABM, if ∠ABM = 30º find ∠MCD. (i) 65º (ii) 45º (iii) 40º (iv) 30º
(e)	The length of AM is (i) $\sqrt{61}$m (ii) $\frac{\sqrt{61}}{10}$ m (iii) $\frac{\sqrt{61}}{2}$ m (iv) $\frac{5\sqrt{61}}{100}$ m
2 marks questions	
Q.7.	In fig., if AD ⊥ BC, then prove that $AB^2 + CD^2 = BD^2 + AC^2$. 
Q.8.	In fig., ΔPQR is right-angled at P. M is a point on QR such that PM is perpendicular to QR. Show that PQ^2 = QM × QR.

	
Q.9.	A vertical stick 12m long casts a shadow 8m long on the ground. At the same time a tower casts the shadow 40m long on the ground. Determine the height of the tower.
Q.10.	In an equilateral triangle of side $3\sqrt{3}$ cm, find the length of the altitude.
Q.11.	X and Y are points on the sides AB and AC respectively of a triangle ABC such that $\frac{AX}{AB} = \frac{1}{4}$, AY= 2 cm and YC = 6 cm. Find whether XY ‖ BC or not. 
3 marks questions	
Q.12.	In ΔABC, D and E are points on AC and BC respectively such that DE || AB. If AD = 2x, BE = 2x – 1, CD = x + 1 and CE = x – 1, then find the value of x.
Q.13.	Two poles of height 10m & 15 m stand vertically on a plane ground. If the distance between their feet is 5√3m then find the distance between their tops.
Q.14.	In the given fig., ABCD is a rectangle. P is midpoint of DC. If QB = 7cm, AD = 9cm and DC = 24cm, then prove that ∠APQ = 90°.

	
Q.15.	In the given figure, ABC is a triangle in which AB = AC and D is a point on AC such that BC^2 = AC x CD. Prove that BD = BC. 
Q.16.	QT and RS are medians of a triangle PQR right angled at P. Prove that $4(QT^2 + RS^2) = 5\ QR^2$
Q.17.	In Δ ABC, AD is perpendicular BC. AD^2 = BD x DC. Prove that Δ ABC is a right - angled triangle.
	5 marks questions
Q.18.	In the given figure, D and E trisect BC. Prove that $8AE^2 = 3AC^2 + 5AD^2$. 
Q.19.	Two poles of height a and b (b > a) are c metres apart. Prove that the height h (in metres) of the point of intersection of the lines joining the top of each pole to the foot of the opposite pole is $\frac{ab}{a+b}$.



Q.20. In fig, AB ‖ PQ ‖ CD, AB = x units, CD = y units and PQ = z units. Prove that $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$.



ANSWERS

Q.1	90°	**Q.2**	1:9	**Q.3**	8cm	**Q.4**	90°
Q.5	36:49	**Q.6**	a(i), b(iii), c(i), d(iv), e(iii)	**Q.9**	60m	**Q.10**	4.5cm
Q.12	$x = \frac{1}{3}$	**Q.13**	10m				

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