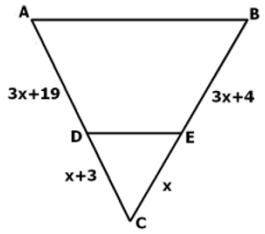
Contact- 8827431647

SUNRISE EDUCATION CENTRE

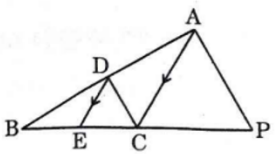
An Institute for 9th – 12th MATHEMATICS (Basic/Standard, Core/Applied) -By Er. Mohit Nariyani.

Worksheet - I
Chapter-6
Triangles

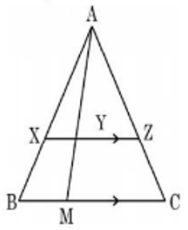
1. A vertical pole of length 20 m casts a shadow 10 m long on the ground and at the same time a tower casts a shadow 50 m long, then the height of the tower
2. In triangle ABC, DE || BC and $\frac{AD}{DB} = \frac{3}{5}$ .If AC = 4.8 cm, find AE.
3. Find the value of x for which DE || AB in the givenFigure.



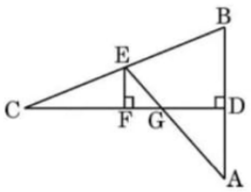
4. Complete the sentence: Two polygons of the same number of sides are similar if…….
5. In triangle ABC, DE||BC $\frac{AD}{DB} = \frac{AE}{EC}$ and ∠AED = ∠ABC. Show that AB = AC.
6. If a line intersects sides AB and AC of a ΔABC at D and E resp. and is parallel to BC, prove that $\frac{AD}{AB} = \frac{AE}{AC}$.
7. D is a point on the side BC of a triangle ABC such that ∠ADC = ∠BAC. Show that $CA^2 = CB.CD$
8. If ΔABC and ΔDEF are similar such that 2AB = DE and BC = 8 cm, then find EF.
9. If AD and PM are medians of triangles ABC and PQR, where ΔABC ~ ΔPQR, prove that $\frac{AB}{PQ} = \frac{AD}{PM}$
10. A vertical pole of length 6 m casts a shadow 4 m long on the ground and at the same time a tower casts a shadow 28 m long. Find the height of the tower.
11. State and prove Basic proportionality theorem(Thales Theorem).
12. State and prove converse of Basic proportionality theorem.
13. In the given figure, DE||AC and $\frac{BE}{EC} = \frac{BC}{CP}$, prove that DC||AP.



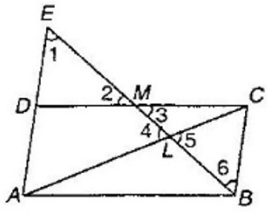
14. In the given figure, XZ is parallel to BC. AZ = 3 cm, ZC = 2 cm, BM = 3cm and MC=5cm. Find the length of XY.



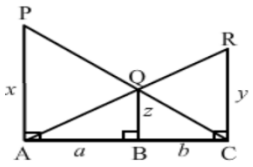
15. In the given figure, CD is the perpendicular bisector of AB. EF is perpendicular to CD. AE intersects CD at G. Prove that $\frac{CF}{CD} = \frac{FG}{DG}$



16. In the given figure ABCD is a parallelogram. BE bisects CD at M and intersects AC at L. prove that EL =2BL



17. Prove that the internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle.(Angle-Bisector Theorem)

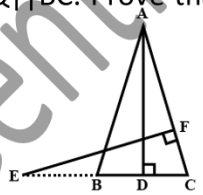


18. In the given figure, PA, QB and RC are perpendicular to AC.
    If AP = x, QB = z, RC = y, AB = a and BC = b, show that $\frac{1}{x}+\frac{1}{y}=\frac{1}{z}$

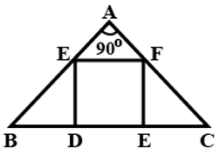
19. CD and GH are respectively the bisectors of ∠ACB and ∠EGF such that D and H lie on sides AB and FE of ΔABC and ΔEFG respectively. If ΔABC ~ ΔFEG, Show that:
    (a) ΔADC~ ΔFHG (b)ΔBCD~ΔEGH (c) $\frac{CD}{GH}=\frac{AC}{FG}$

20. In a △ABC, let P and Q be points on AB and AC respectively such that PQ||BC. Prove that the median AD bisects PQ.

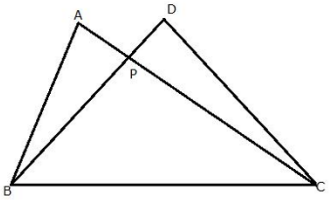
21. In given figure E is a point on side CB produced of an isoceles triangle ABC with AB=AC. IF $AB \perp BC$ and $EF \perp AC$, prove that ΔABD~ ΔECF



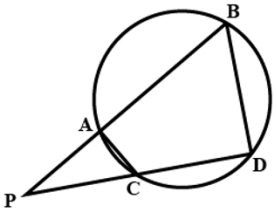
22. In given figure, DEFG is a square and $\angle BAC = 90°$. Prove that
    (a) ΔAGF~ ΔDBG (b) ΔAGF~ ΔEFC
    (c) ΔDBG~ ΔEFC (d) $DE^2 = BD \times EC$



23. Two right triangles ABC and DBC are drawn on the same hypotenuse BC and on the same side of BC. IF AC and BD interscets at P.
    Prove that: $AP \times PC = BP \times PD$



24. In given Fig., two chords AB and CD of a circle intersect each other at the point P (when produced) outside the circle. Prove that:
    (a) ΔPAC~ ΔPDB (b) $PA \times PB = PC \times PD$



25. In given Fig., two chords AB and CD intersect each other at the point P.
    Prove that : (a) ΔPAC~ ΔPDB (b) $PA \times PB = PC \times PD$