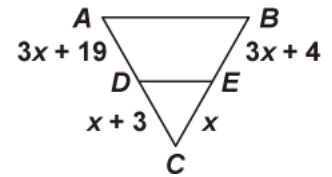
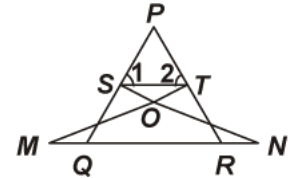


Q1. Find the value of x for which $DE \parallel AB$ in given figure.



Q2. In figure, if $\angle 1 = \angle 2$ and $\triangle NSQ \cong \triangle MTR$, then prove that $\triangle PTS \sim \triangle PRQ$.

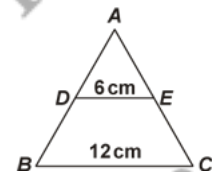


Q3. Diagonals of a trapezium PQRS intersect each other at the point O, $PQ \parallel RS$ and $PQ = 3RS$. Find the ratio of the areas of $\triangle POQ$ and $\triangle ROS$.

Q4. Find the altitude of an equilateral triangle of side 8 cm.

Q5. If $\triangle ABC \sim \triangle DEF$, $AB = 4$ cm, $DE = 6$ cm, $EF = 9$ cm and $FD = 12$ cm, then find the perimeter of $\triangle ABC$.

Q6. In figure, if $DE \parallel BC$, then find the ratio of ar($\triangle ADE$) and ar($DECB$).

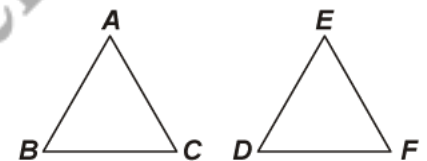


Q7. Areas of two similar triangles are 36 cm^2 and 100 cm^2 . If the length of a side of the larger triangle is 20 cm. Find the length of the corresponding side of the smaller triangle.

Q8. A 15 m high tower casts a shadow 24 m long at a certain time and at the same time, a telephone pole casts a shadow 16 m long. Find the height of the telephone pole.

Q9. Foot of a 10 m long ladder leaning against a vertical wall is 6 m away from the base of the wall. Find the height of the point on the wall where the top of the ladder reaches.

Q10. It is given that $\triangle ABC \sim \triangle EDF$ such that $AB = 5$ cm, $AC = 7$ cm, $DF = 15$ cm and $DE = 12$ cm. Find the lengths of the remaining sides of the triangles.



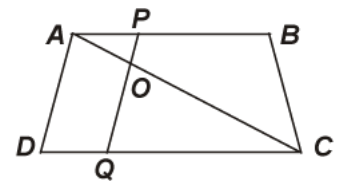
Q11. A 5 m ladder is placed leaning towards a vertical wall such that it reaches the wall at a point 4 m high. If the foot of the ladder is moved 1.6 m towards the wall, then find the distance by which the top of the ladder would slide upwards on the wall.

Q12. A flag pole 18 m high casts a shadow 9.6 m long. Find the distance of the top of the pole from the far end of the shadow.

Q13. A street light bulb is fixed on a pole 6 m above the level of the street. If a woman of height 1.5 m casts a shadow of 3 m, then find how far she is away from the base of the pole.

Q14. In a $\triangle PQR$, $PR^2 - PQ^2 = QR^2$ and M is a point on side PR such that $QM \perp PR$. Prove that $QM^2 = PM \times MR$.

- Q15.** In figure, if $AB \parallel DX$ and AC, PQ intersect each other at the point O . Prove that $OA \cdot CQ = OC \cdot AP$.

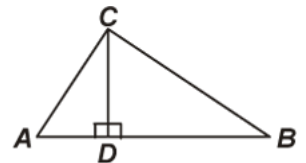


- Q16.** $ABCD$ is a trapezium in which $AB \parallel DC$ and P, Q are points on AD and BC respectively, such that $PQ \parallel DC$, if $PD = 18$ cm, $BQ = 35$ cm and $QC = 15$ cm, find AD .

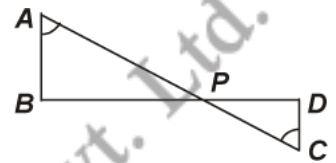
- Q17.** Corresponding sides of two similar triangles are in the ratio of $2 : 3$. If the area of the smaller triangle is 48 cm^2 , then find the area of the larger triangle.

- Q18.** In a ΔPQR , N is a point on PR , such that $QN \perp PR$. If $PN \cdot NR = QN^2$, then prove that $\angle PQR = 90^\circ$.

- Q19.** In given figure, if $\angle ACB = \angle CDA$, $AC = 8$ cm and $AD = 3$ cm, then find BD .

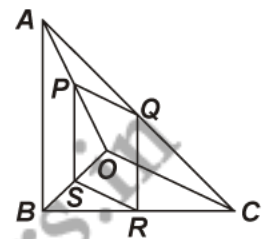


- Q20.** In given figure, if $\angle A = \angle C$, $AB = 6$ cm, $BP = 15$ cm, $AP = 12$ cm and $CP = 4$ cm, then find the lengths of PD and CD .



- Q21.** Prove that, if a line is drawn parallel to one side of a triangle to intersect the other two sides, then the two sides are divided in the same ratio.

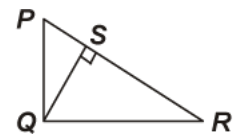
- Q22.** In the given figure, if $PQRS$ is a parallelogram and $AB \parallel PS$, then prove that $OC \parallel SR$.



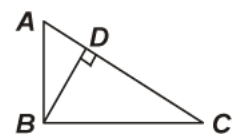
- Q23.** For going to a city B from city A there is a route via city C such that $AC \perp CB$, $AC = 2x$ km and $CB = 2(x + 7)$ km. It is proposed to construct a 26 km highway which directly connects the two cities A and B . Find how much distance will be saved in reaching city B from city A after the construction of the highway.

- Q24.** In a quadrilateral, $A + D = 90^\circ$. Prove that $AC^2 + BD^2 = AD^2 + BC^2$.

- Q25.** In given figure, PQR is a right triangle, right angled at Q and $QS \perp PR$. If $PQ = 6$ cm and $PS = 4$ cm, then find QS, RS and QR .

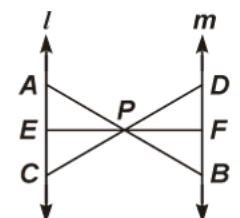


- Q26.** In given figure, ABC is a triangle right angled at B and $BD \perp AC$. If $AD = 4$ cm and $CD = 5$ cm, then BD and AB .

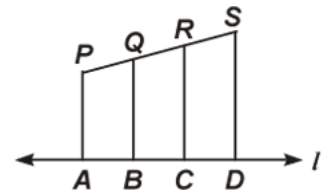


- Q27.** In ΔPQR , $PD \perp QR$ such that D lies on QR , if $PQ = a$, $PR = b$, $QD = c$ and $DR = d$, then prove that $(a + b)(a - b) = (c + d)(c - d)$.

- Q28.** In given figure, $l \parallel m$ and line segments AB, CD and EF are concurrent at point P . Prove that $\frac{AE}{BF} = \frac{AC}{BD} = \frac{CE}{FD}$.

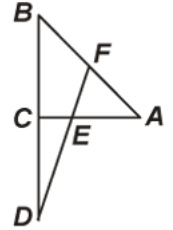


- Q29.** In figure, PA , QB , RC and SD are all perpendiculars to a line l , $AB = 6$ cm, $BC = 9$ cm, $CD = 12$ cm and $SP = 36$ cm. Find PQ , QR and RS .



- Q30.** O is the point of intersection of the diagonals AC and BD of a trapezium $ABCD$ with $AB \parallel DC$. Through O , a line segment PQ is drawn parallel to AB meeting AD in P and BC in Q , prove that $PO = QO$.

- Q31.** In figure, line segment DF intersects the side AC of a $\triangle ABC$ at the point E such that E is the mid-point of CA and $\angle AEF = \angle AFE$. Prove that $\frac{BD}{CD} = \frac{BF}{CE}$.



- Q32.** Prove that the area of the semi-circle drawn on the hypotenuse of a right angled triangle is equal to the sum of the areas of the semi-circles drawn on the other two sides of the triangle.
- Q33.** Prove that the area of the equilateral triangle drawn on the hypotenuse of a right angled triangle is equal to the sum of the areas of the equilateral triangle drawn on the other two sides of the triangle.

SMARTACHIEVERS LEARNING Pvt. Ltd.
 www.smartachievers.in

- S1.** $x = 2$.
- S2.** Proved.
- S3.** Area ΔPOQ : Area $\Delta ROS = 9 : 1$.
- S4.** Altitude = $4\sqrt{3}$ cm .
- S5.** Perimeter $\Delta ABC = 18$ cm.
- S6.** $\frac{\text{ar } \Delta ADE}{\text{ar } \Delta AECD} = \frac{1}{3}$.
- S7.** 12 cm.
- S8.** 10 m.
- S9.** 8 cm.
- S10.** $EF = 16.8$ cm, $BC = 6.25$ cm.
- S11.** 0.8m.
- S12.** 20.4m.
- S13.** 9m.
- S14.** Proved.
- S15.** Proved.
- S16.** $AD = 60$ cm.
- S17.** 108 cm^2 .
- S18.** Proved.
- S19.** $BD = \frac{55}{3}$ cm.
- S20.** $PD = 5$ cm, $CD = 2$ cm.
- S21.** Proved.
- S22.** Proved.
- S23.** 8 km.
- S24.** Proved.
- S25.** $QS = 2\sqrt{5}$ cm, $RS = 5$ cm, $QR = 3\sqrt{5}$ cm.

SMARTACHIEVERS LEARNING Pvt. Ltd.
www.smartachievers.in

S26. $BD = 2\sqrt{5}$ cm, $AB = 6$ cm.

S27. Proved.

S28. Proved.

S29. $PQ = 8$ cm, $QR = 12$ cm, $RS = 16$ cm.

S30. Proved.

S31. Proved.

S32. Proved.

S33. Proved.

SMARTACHIEVERS LEARNING Pvt. Ltd.
www.smartachievers.in