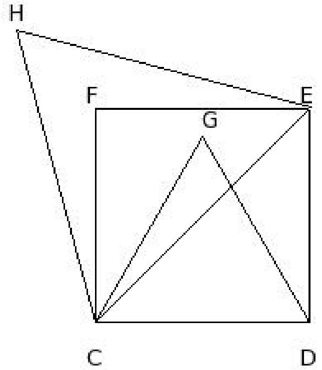
Name : Pythagoras Theorem

Chapter : Similar Triangles

Grade : SSC Grade X

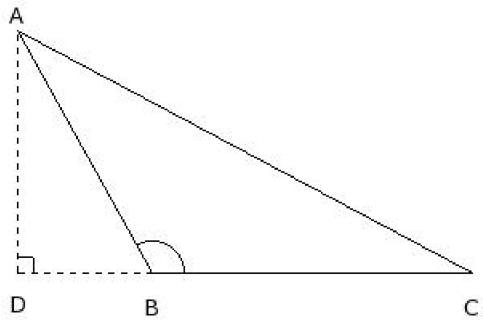
EduSahara™ Assignment

1. CDEF is a square and △CDG is an equilateral triangle. Also, △CEH is an equilateral triangle. If area of △CDG is 'a' sq.units, then the area of △CEH is



(i) $\sqrt{3}$ a sq.units (ii) $\frac{1}{2}\sqrt{3}$ a sq.units (iii) a^2 sq.units (iv) 2a sq.units (v) $\frac{1}{2}$ a sq.units

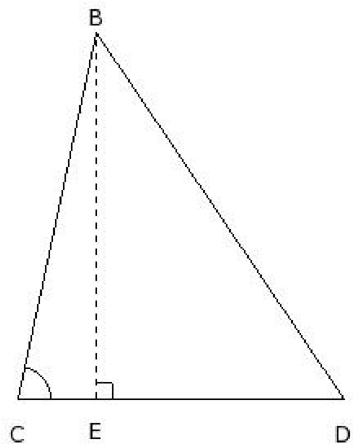
2. In the given figure, △ABC is an obtuse angled triangle and AD ⊥ BC. Then



(i) $AC^2 = AB^2 + BC^2 + 2AB.BC$ (ii) $AC^2 = AB^2 + BC^2 + 2BC.BD$ (iii) $AC^2 = AB^2 + BC^2 + BD^2$

(iv) $AC^2 = AB^2 + BC^2 + 2BD.CD$ (v) $AC^2 = AB^2 + BC^2 - 2BC.BD$

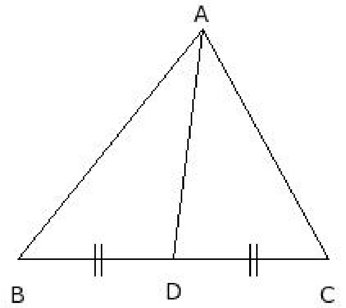
3. In the given figure, △BCD is an acute angled triangle and BE ⊥ CD. Then



(i) $BD^2 = BC^2 + CD^2 + 2CD.CE$ (ii) $BD^2 = BC^2 + CD^2 + 2BC.CD$ (iii) $BD^2 = BC^2 + CD^2 - BE^2$

(iv) $BD^2 = BC^2 + CD^2 - 2CD.CE$ (v) $BD^2 = BC^2 + CD^2 - 2BC.CD$

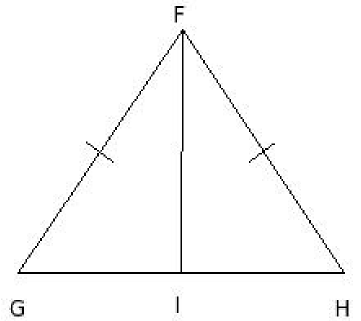
4. In the given figure, $\triangle ABC$ is a triangle with AD being the median of BC. Then



(i) $AB^2 + AC^2 = AD^2$ (ii) $AB^2 + AC^2 = BC^2$ (iii) $AB^2 + AC^2 = 2\,BD^2 + 2\,DC^2$ (iv) $AB^2 + AC^2 = 2\,DC^2 + 2\,AD^2$

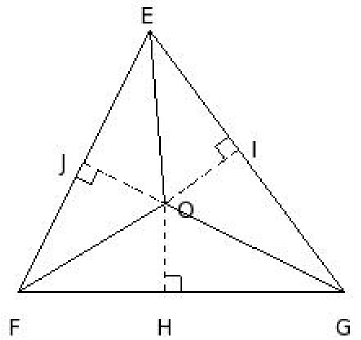
(v) $AB^2 + AC^2 = 2\,BD^2 + 2\,AD^2$

5. In the given figure, $\triangle FGH$ is a triangle in which FG = FH and I is a point on GH. Then



(i) $FG^2 + FI^2 = GH^2$ (ii) $FG^2 - FI^2 = FI.HI$ (iii) $FG^2 - FI^2 = GI.HI$ (iv) $FG^2 - FI^2 = FI.GI$ (v) $FG^2 + FI^2 = GI.HI$

6. In the given figure, in $\triangle EFG$, 'O' is a point inside the triangle. $OH \perp FG$, $OI \perp EG$ and $OJ \perp EF$. Then

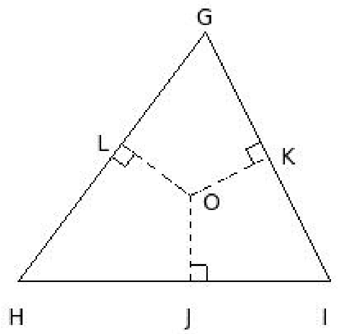


(i) $EJ^2 + FH^2 + GI^2 = EF^2 + HG^2 + GE^2 - FJ^2 - GH^2 - IE^2$

(ii) $EJ^2 + FH^2 + GI^2 = OE^2 + OF^2 + OG^2 + OH^2 + OI^2 + OJ^2$ (iii) $EJ^2 + FH^2 + GI^2 = OJ^2 + OI^2 + OH^2$

(iv) $EJ^2 + FH^2 + GI^2 = OE^2 + OF^2 + OG^2 - OH^2 - OI^2 - OJ^2$

7. In the given figure, in $\triangle GHI$, 'O' is a point inside the triangle. $OJ \perp HI$, $OK \perp GI$ and $OL \perp GH$. Then



(i) $GL^2 + HJ^2 + IK^2 = GK^2 + IJ^2 + HL^2$ (ii) $GL^2 + HJ^2 + IK^2 = OL.OJ + OJ.OK + OK.OL$

(iii) $GL^2 + HJ^2 + IK^2 = OG.OH + OH.OI + OI.OG$ (iv) $GL^2 + HJ^2 + IK^2 = OJ^2 + OK^2 + OL^2$

8. In the given figure, $\triangle EGF$ is right-angled at G. Q is the mid-point of EG and R is the mid-point of FG. Which of the following cases are true?

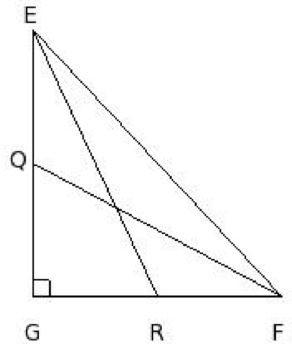
a) $4\,FQ^2 = 4\,FG^2 + EG^2$

b) $4\,FQ^2 = 4\,EG^2 + FG^2$

c) $4\,(ER^2 + FQ^2) = 5\,EF^2$

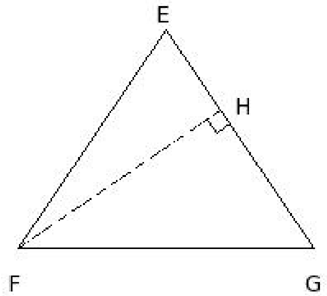
d) $4\,ER^2 = 4\,FG^2 + EG^2$

e) $4\,ER^2 = 4\,EG^2 + FG^2$



(i) {a,c,e} (ii) {b,d,e} (iii) {b,a,c} (iv) {b,a} (v) {d,c}

9. In the given figure, $\triangle EFG$ is isosceles with EF = EG and FH ⊥ EG. Then



(i) $FH^2 - GH^2 = 2\,GH.EH$ (ii) $FH^2 + GH^2 = 2\,GH.EH$ (iii) $FH^2 + EH^2 = 2\,GH.EH$ (iv) $FH^2 - EH^2 = 2\,GH.EH$

10. In the given figure, FGHI is a rhombus. Which of the following are true?

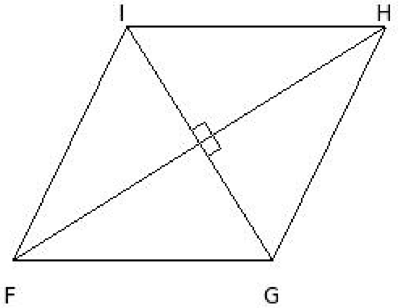
a) $GH^2 + HI^2 = GI^2$

b) $2\,FG^2 = FH^2 + GI^2$

c) $FG^2 + GH^2 = FH^2$

d) $4\,FG^2 = FH^2 + GI^2$

e) $FG^2 + GH^2 + HI^2 + FI^2 = FH^2 + GI^2$



(i) {d,e} (ii) {b,e} (iii) {b,e,d} (iv) {c,a,d} (v) {a,d}

11. In the given figure, $\triangle ABC$, $AD \perp BC$. Which of the following are true?

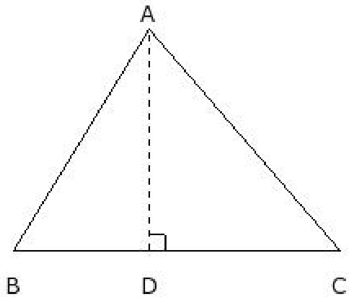
a) $AB^2 + BD^2 = AC^2 + CD^2$

b) $AB^2 - AC^2 = BD^2 - CD^2$

c) $AD^2 = 2 BD . CD$

d) $AB^2 + AC^2 = BD^2 + CD^2$

e) $AB^2 - BD^2 = AC^2 - CD^2$

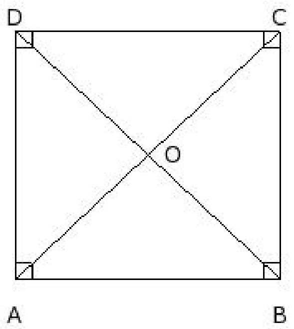


(i) {c,e} (ii) {d,a,b} (iii) {c,e,b} (iv) {a,b} (v) {b,e}

12. The altitude and area of an equilateral triangle of side 'a' is

(i) $\sqrt{3}\,a, \frac{1}{2}\sqrt{3}\,a$ (ii) $\frac{1}{2}\sqrt{3}\,a, \frac{1}{2}\sqrt{3}\,a^2$ (iii) $\sqrt{3}\,a, \frac{1}{2}\sqrt{3}\,a^2$ (iv) $\frac{1}{2}\sqrt{3}\,a, \frac{1}{4}\sqrt{3}\,a^2$

13. In the given figure, O is a point in the interior of the rectangle ABCD. Then



(i) $OA^2 + OB^2 + OC^2 + OD^2 = AB^2 + BC^2 + CD^2 + DA^2$ (ii) $OA^2 + OB^2 + OC^2 + OD^2 = AC^2 + BD^2$

(iii) $OA^2 - OC^2 = OB^2 - OD^2$ (iv) $OA^2 + OC^2 = OB^2 + OD^2$

14. In the given figure, $\triangle BCD$, E is the mid-point of CD and BF $\perp$ CD. Which of the following are true?

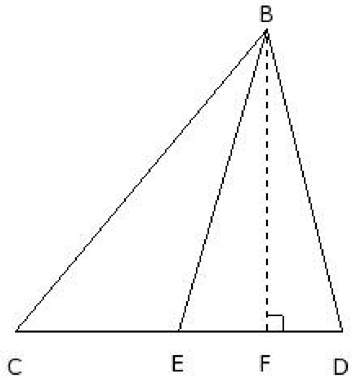
a) $BD^2 = BE^2 + CD.EF + \frac{1}{4} CD^2$

b) $BC^2 = BE^2 - CD.EF + \frac{1}{4} CD^2$

c) $BD^2 = BF^2 + CD.EF + \frac{1}{4} CD^2$

d) $BC^2 + BD^2 = 2 BE^2 + \frac{1}{2} CD^2$

e) $BC^2 = BF^2 - CD.EF + \frac{1}{4} CD^2$



(i) {c,a} (ii) {c,a,b} (iii) {e,b} (iv) {a,b,d} (v) {c,e,d}

15. In the given figure, $\triangle BDC$ is right-angled at D, DE $\perp$ BC.
$BC = c, DC = a, BD = b$ and $DE = p$. Which of the following are true?

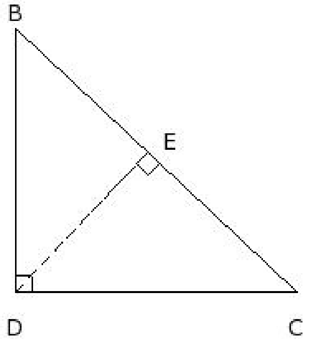
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{p^2}$

b) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = \frac{1}{p^2}$

c) $a^2 + b^2 = c^2$

d) $ab = pc$

e) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2}$

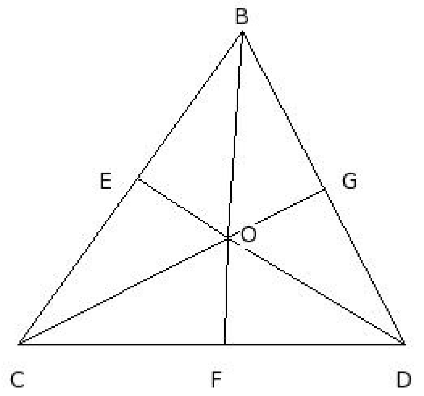


(i) {a,c,d} (ii) {a,b,e} (iii) {a,c} (iv) {b,d} (v) {c,d,e}

16. In an equilateral triangle ABC, the side BC is trisected at D. Then

(i) $9 AD^2 = 7 AB^2$ (ii) $7 AD^2 = 3 AB^2$ (iii) $7 AD^2 = 9 AB^2$ (iv) $3 AD^2 = 7 AB^2$

17. In the given figure, BCD is a triangle and 'O' is a point inside △BCD. The angular bisector of ∠COB, ∠DOC & ∠BOD meet BC, CD & DB at E, F & G respectively . Then



(i) BE . CF . DG = EF . FG . GE (ii) BE . CF . DG = BC . CD . DB (iii) BE . CF . DG = OB . OC . OD

(iv) BE . CF . DG = EC . FD . GB (v) BE . CF . DG = OE . OF . OG

18. A vehicle goes 10 km West and then 15 km North. How far is it from its starting point ?

(i) 16.03 km (ii) 19.03 km (iii) 20.03 km (iv) 17.03 km (v) 18.03 km

19. The foot of a ladder resting on a wall from the foot of the wall is 15 m. If the height of the top of the ladder from ground is 10 m, find the length of the ladder

(i) 20.03 m (ii) 18.03 m (iii) 19.03 m (iv) 17.03 m (v) 16.03 m

20. Two poles of heights 5 m and 17 m stand vertically on a plane ground. If the distance between their feet is 14 m, find the distance between their tops

(i) 17.44 m (ii) 16.44 m (iii) 20.44 m (iv) 19.44 m (v) 18.44 m

21. A ladder reaches a window which is 8 m above the ground on one side of a street. Keeping its foot at the same point, the ladder is turned to the other side of the street to reach a window 14 m high. Find the width of the street if the length of the ladder is 19 m

(i) 30.08 m (ii) 28.08 m (iii) 31.08 m (iv) 32.08 m (v) 29.08 m

Assignment Key

1) (iv)	2) (ii)	3) (iv)	4) (v)	5) (iii)	6) (iv)
7) (i)	8) (i)	9) (i)	10) (i)	11) (v)	12) (iv)
13) (iv)	14) (iv)	15) (v)	16) (i)	17) (iv)	18) (v)
19) (ii)	20) (v)	21) (i)			