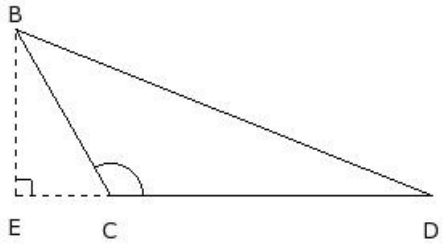
EduSahara™ Assignment

Name : Pythagoras Theorem

Chapter : Pythagoras Theorem

Grade : ICSE Grade IX

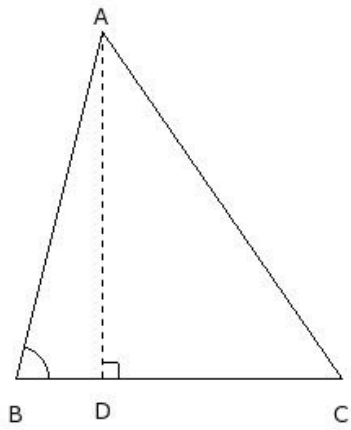
1. In the given figure, △BCD is an obtuse angled triangle and BE ⊥ CD. Then



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

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

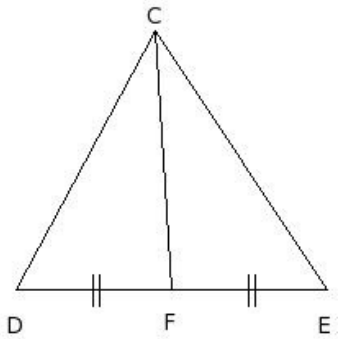
2. In the given figure, △ABC is an acute angled triangle and AD ⊥ BC. Then



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

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

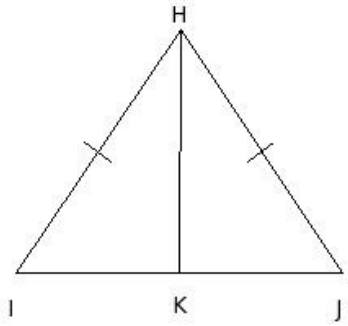
3. In the given figure, △CDE is a triangle with CF being the median of DE. Then



(i) $CD^2 + CE^2 = CF^2$ (ii) $CD^2 + CE^2 = 2DF^2 + 2CF^2$ (iii) $CD^2 + CE^2 = 2FE^2 + 2CF^2$ (iv) $CD^2 + CE^2 = DE^2$

(v) $CD^2 + CE^2 = 2DF^2 + 2FE^2$

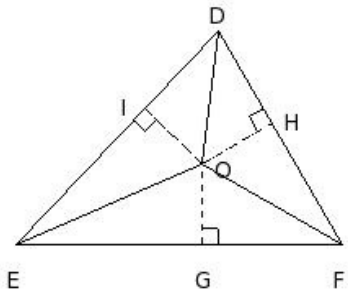
4. In the given figure, $\triangle HIJ$ is a triangle in which HI = HJ and K is a point on IJ. Then



(i) $HI^2 - HK^2 = IK.JK$ (ii) $HI^2 - HK^2 = HK.JK$ (iii) $HI^2 + HK^2 = IJ^2$ (iv) $HI^2 + HK^2 = IK.JK$

(v) $HI^2 - HK^2 = HK.IK$

5. In the given figure, in $\triangle DEF$, 'O' is a point inside the triangle. $OG \perp EF$, $OH \perp DF$ and $OI \perp DE$. Then

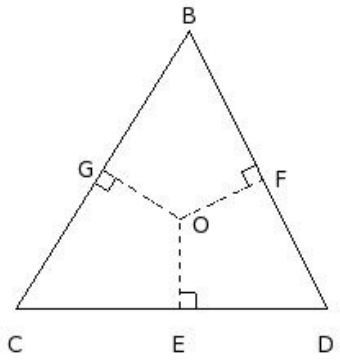


(i) $DI^2 + EG^2 + FH^2 = OD^2 + OE^2 + OF^2 + OG^2 + OH^2 + OI^2$

(ii) $DI^2 + EG^2 + FH^2 = DE^2 + GF^2 + FD^2 - EI^2 - FG^2 - HD^2$ (iii) $DI^2 + EG^2 + FH^2 = OI^2 + OH^2 + OG^2$

(iv) $DI^2 + EG^2 + FH^2 = OD^2 + OE^2 + OF^2 - OG^2 - OH^2 - OI^2$

6. In the given figure, in $\triangle BCD$, 'O' is a point inside the triangle. $OE \perp CD$, $OF \perp BD$ and $OG \perp BC$. Then



(i) $BG^2 + CE^2 + DF^2 = BF^2 + DE^2 + CG^2$ (ii) $BG^2 + CE^2 + DF^2 = OB.OC + OC.OD + OD.OB$

(iii) $BG^2 + CE^2 + DF^2 = OG.OE + OE.OF + OF.OG$ (iv) $BG^2 + CE^2 + DF^2 = OE^2 + OF^2 + OG^2$

7. In the given figure, $\triangle FHG$ is right-angled at H. P is the mid-point of FH and Q is the mid-point of GH. Which of the following cases are true?

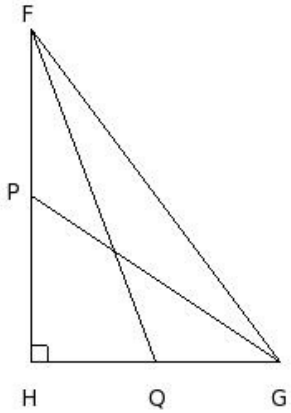
a) $4\,FQ^2 = 4\,FH^2 + GH^2$

b) $4\,(FQ^2 + GP^2) = 5\,FG^2$

c) $4\,FQ^2 = 4\,GH^2 + FH^2$

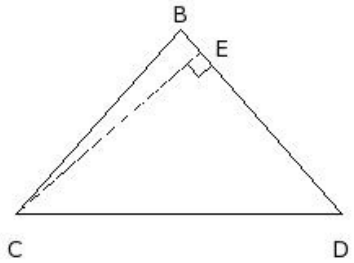
d) $4\,GP^2 = 4\,FH^2 + GH^2$

e) $4\,GP^2 = 4\,GH^2 + FH^2$



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

8. In the given figure, $\triangle BCD$ is isosceles with $BC = BD$ and $CE \perp BD$. Then



(i) $CE^2 - BE^2 = 2\,DE.BE$ (ii) $CE^2 + DE^2 = 2\,DE.BE$ (iii) $CE^2 - DE^2 = 2\,DE.BE$ (iv) $CE^2 + BE^2 = 2\,DE.BE$

9. In the given figure, CDEF is a rhombus. Which of the following are true?

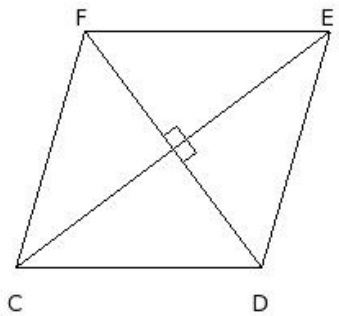
a) $DE^2 + EF^2 = DF^2$

b) $2\,CD^2 = CE^2 + DF^2$

c) $CD^2 + DE^2 + EF^2 + CF^2 = CE^2 + DF^2$

d) $4\,CD^2 = CE^2 + DF^2$

e) $CD^2 + DE^2 = CE^2$



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

10. In the given figure, $\triangle IJK$, $IL \perp JK$. Which of the following are true?

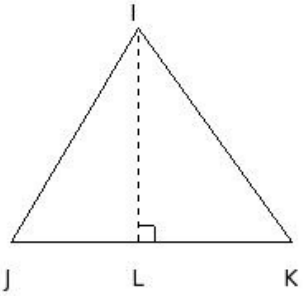
a) $IJ^2 - JL^2 = IK^2 - KL^2$

b) $IL^2 = 2JL.KL$

c) $IJ^2 - IK^2 = JL^2 - KL^2$

d) $IJ^2 + IK^2 = JL^2 + KL^2$

e) $IJ^2 + JL^2 = IK^2 + KL^2$

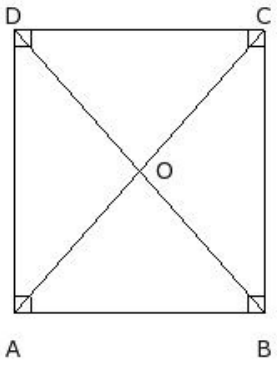


(i) {b,a} (ii) {a,c} (iii) {d,c} (iv) {e,b,a} (v) {d,c,a}

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

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

12. 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) $OA^2 - OC^2 = OB^2 - OD^2$

13. In the given figure, △BCD , E is the mid-point of CD and BF ⊥ CD. Which of the following are true?

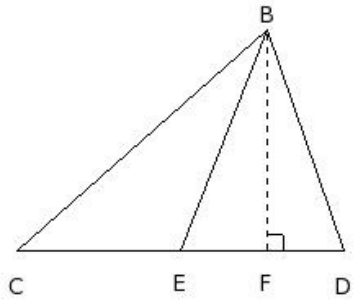
a) $BC^2 = BE^2 - CD.EF + \frac{1}{4} CD^2$

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

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

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

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



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

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

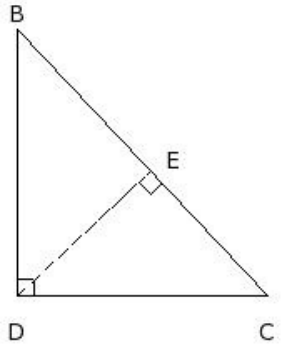
a) $a^2 + b^2 = c^2$

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

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

d) $ab = pc$

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

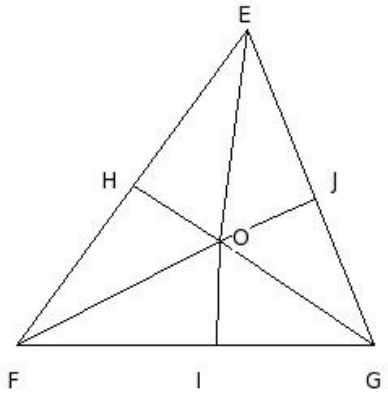


(i) {e,b} (ii) {c,a,b} (iii) {a,b,d} (iv) {c,e,d} (v) {c,a}

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

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

16. In the given figure, EFG is a triangle and 'O' is a point inside △EFG. The angular bisector of ∠FOE, ∠GOF & ∠EOG meet EF, FG & GE at H, I & J respectively . Then



(i) EH . FI . GJ = OH . OI . OJ (ii) EH . FI . GJ = HF . IG . JE (iii) EH . FI . GJ = OE . OF . OG

(iv) EH . FI . GJ = EF . FG . GE (v) EH . FI . GJ = HI . IJ . JH

17. A vehicle goes 14 km South and then 13 km West. How far is it from its starting point ?

(i) 18.10 km (ii) 21.10 km (iii) 17.10 km (iv) 20.10 km (v) 19.10 km

18. The foot of a ladder resting on a wall from the foot of the wall is 14 m. If the height of the top of the ladder from ground is 12 m, find the length of the ladder

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

19. Two poles of heights 6 m and 13 m stand vertically on a plane ground. If the distance between their feet is 14 m, find the distance between their tops

(i) 13.65 m (ii) 15.65 m (iii) 14.65 m (iv) 17.65 m (v) 16.65 m

20. A ladder reaches a window which is 12 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 17 m high. Find the width of the street if the length of the ladder is 20 m

(i) 26.54 m (ii) 27.54 m (iii) 25.54 m (iv) 24.54 m (v) 28.54 m

21. In a right angled triangle, if one of the sides is 20 cm and hypotenuse 101 cm, find the third side

(i) 97.00 cm (ii) 100.00 cm (iii) 99.00 cm (iv) 101.00 cm (v) 98.00 cm

22. In a right angled triangle, if the two non-hypotenuse sides are 18 cm and 80 cm, find the hypotenuse

(i) 82.00 cm (ii) 80.00 cm (iii) 81.00 cm (iv) 83.00 cm (v) 84.00 cm

23. In a right angled triangle, if one of the angles is 49.76°, find the third angle

(i) 50.24° (ii) 55.24° (iii) 70.24° (iv) 40.24° (v) 45.24°

24. In a right angled triangle, if one of the angles is 49.76°, find the third angle

(i) 40.24° (ii) 55.24° (iii) 45.24° (iv) 70.24° (v) 50.24°

Assignment Key

1) (ii)	2) (iv)	3) (ii)	4) (i)	5) (iv)	6) (i)
7) (iii)	8) (iii)	9) (iii)	10) (ii)	11) (i)	12) (iii)
13) (ii)	14) (iii)	15) (iv)	16) (ii)	17) (v)	18) (iii)
19) (ii)	20) (i)	21) (iii)	22) (i)	23) (iv)	24) (i)