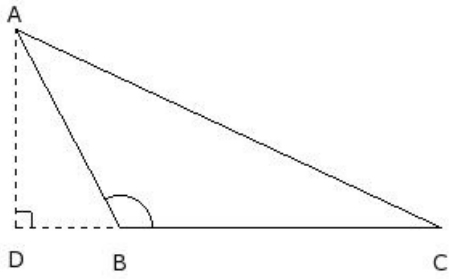
EduSahara™ Assignment

Name : Pythagoras Theorem

Chapter : Pythagoras Theorem

Grade : ICSE Grade IX

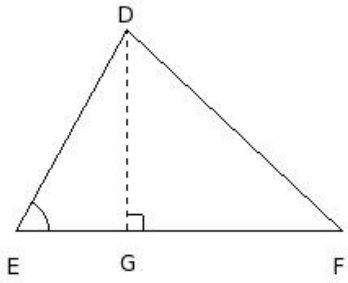
1. In the given figure, △ABC is an obtuse angled triangle and AD ⊥ BC. Then



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

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

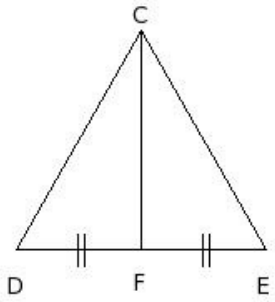
2. In the given figure, △DEF is an acute angled triangle and DG ⊥ EF. Then



(i) $DF^2 = DE^2 + EF^2 + 2DE.EF$ (ii) $DF^2 = DE^2 + EF^2 - 2DE.EF$ (iii) $DF^2 = DE^2 + EF^2 - DG^2$

(iv) $DF^2 = DE^2 + EF^2 - 2EF.EG$ (v) $DF^2 = DE^2 + EF^2 + 2EF.EG$

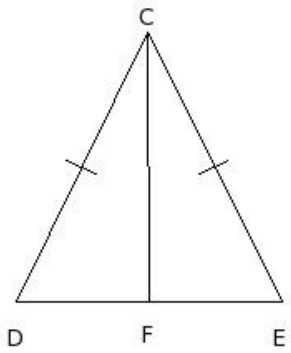
3. In the given figure, △CDE is a triangle with CF being the median of DE. Then



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

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

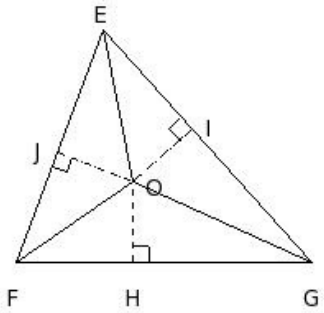
4. In the given figure, △CDE is a triangle in which CD = CE and F is a point on DE. Then



(i) $CD^2 - CF^2 = CF.DF$ (ii) $CD^2 + CF^2 = DF.EF$ (iii) $CD^2 + CF^2 = DE^2$ (iv) $CD^2 - CF^2 = DF.EF$

(v) $CD^2 - CF^2 = CF.EF$

5. In the given figure, in △EFG, 'O' is a point inside the triangle. OH ⊥ FG, OI ⊥ EG and OJ ⊥ EF. Then

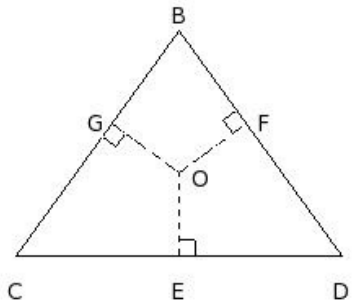


(i) $EJ^2 + FH^2 + GI^2 = OE^2 + OF^2 + OG^2 - OH^2 - OI^2 - OJ^2$ (ii) $EJ^2 + FH^2 + GI^2 = OJ^2 + OI^2 + OH^2$

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

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

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



(i) $BG^2 + CE^2 + DF^2 = OG.OE + OE.OF + OF.OG$ (ii) $BG^2 + CE^2 + DF^2 = OB.OC + OC.OD + OD.OB$

(iii) $BG^2 + CE^2 + DF^2 = BF^2 + DE^2 + CG^2$ (iv) $BG^2 + CE^2 + DF^2 = OE^2 + OF^2 + OG^2$

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

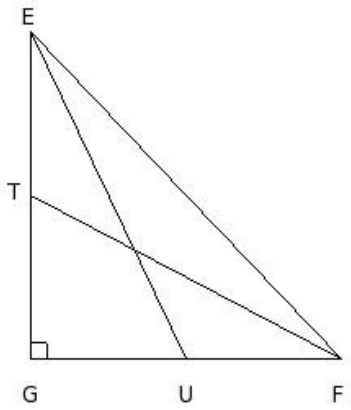
a) $4\,EU^2 = 4\,EG^2 + FG^2$

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

c) $4\,FT^2 = 4\,EG^2 + FG^2$

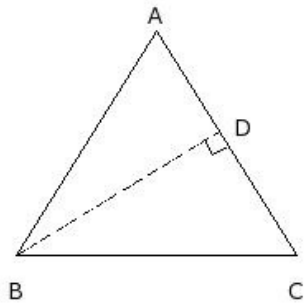
d) $4\,(EU^2 + FT^2) = 5\,EF^2$

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



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

8. In the given figure, $\triangle ABC$ is isosceles with AB = AC and BD $\perp$ AC. Then



(i) $BD^2 - CD^2 = 2\,CD.AD$ (ii) $BD^2 - AD^2 = 2\,CD.AD$ (iii) $BD^2 + CD^2 = 2\,CD.AD$ (iv) $BD^2 + AD^2 = 2\,CD.AD$

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

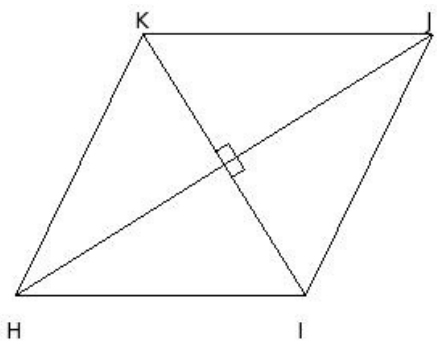
a) $4\,HI^2 = HJ^2 + IK^2$

b) $2\,HI^2 = HJ^2 + IK^2$

c) $HI^2 + IJ^2 = HJ^2$

d) $HI^2 + IJ^2 + JK^2 + HK^2 = HJ^2 + IK^2$

e) $IJ^2 + JK^2 = IK^2$



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

10. In the given figure, $\triangle BCD$, $BE \perp CD$. Which of the following are true?

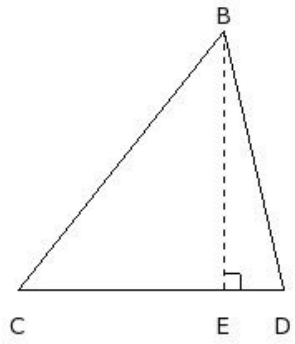
a) $BC^2 - BD^2 = CE^2 - DE^2$

b) $BC^2 - CE^2 = BD^2 - DE^2$

c) $BC^2 + BD^2 = CE^2 + DE^2$

d) $BC^2 + CE^2 = BD^2 + DE^2$

e) $BE^2 = 2CE.DE$

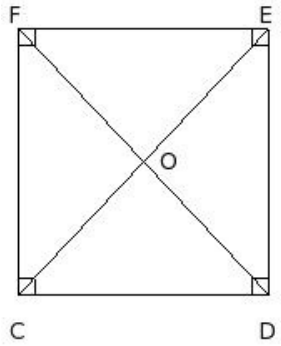


(i) {e,c,a} (ii) {a,b} (iii) {d,b,a} (iv) {c,a} (v) {d,b}

11. 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) $\frac{1}{2}\sqrt{3}\,a, \frac{1}{4}\sqrt{3}\,a^2$ (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 CDEF. Then



(i) $OC^2 + OD^2 + OE^2 + OF^2 = CE^2 + DF^2$ (ii) $OC^2 + OE^2 = OD^2 + OF^2$ (iii) $OC^2 - OE^2 = OD^2 - OF^2$

(iv) $OC^2 + OD^2 + OE^2 + OF^2 = CD^2 + DE^2 + EF^2 + FC^2$

13. In the given figure, △CDE , F is the mid-point of DE and CG ⊥ DE. Which of the following are true?

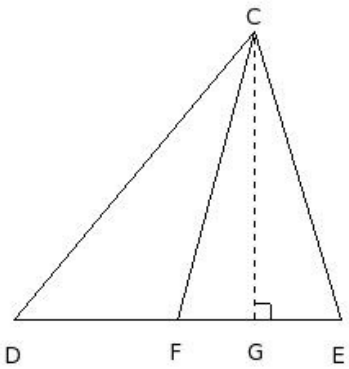
a) $CD^2 = CG^2 - DE.FG + \frac{1}{4} DE^2$

b) $CE^2 = CF^2 + DE.FG + \frac{1}{4} DE^2$

c) $CE^2 = CG^2 + DE.FG + \frac{1}{4} DE^2$

d) $CD^2 = CF^2 - DE.FG + \frac{1}{4} DE^2$

e) $CD^2 + CE^2 = 2\,CF^2 + \frac{1}{2} DE^2$



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

14. In the given figure, △DFE is right-angled at F, FG ⊥ DE.
$DE = c, FE = a, DF = b$ and $FG = p$. Which of the following are true?

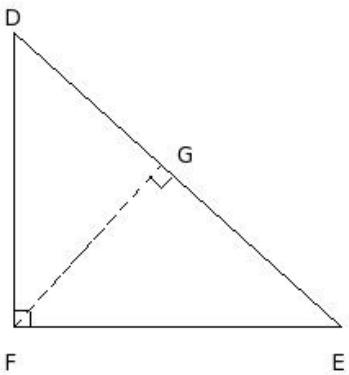
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{p^2}$

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

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

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

e) $ab = pc$

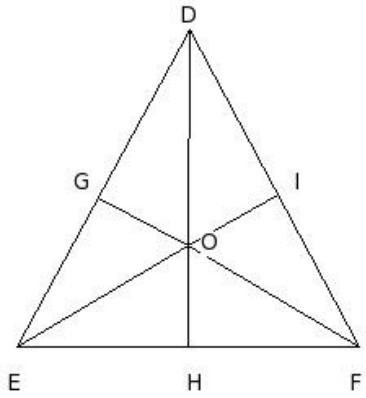


(i) {c,d} (ii) {a,c,e} (iii) {b,d,e} (iv) {a,b,d} (v) {a,b}

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

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

16. In the given figure, DEF is a triangle and 'O' is a point inside △DEF. The angular bisector of ∠EOD, ∠FOE & ∠DOF meet DE, EF & FD at G, H & I respectively . Then



(i) DG . EH . FI = GE . HF . ID (ii) DG . EH . FI = GH . HI . IG (iii) DG . EH . FI = OD . OE . OF

(iv) DG . EH . FI = DE . EF . FD (v) DG . EH . FI = OG . OH . OI

17. A vehicle goes 10 km East and then 11 km South. How far is it from its starting point ?

(i) 12.87 km (ii) 16.87 km (iii) 15.87 km (iv) 14.87 km (v) 13.87 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 15 m, find the length of the ladder

(i) 22.52 m (ii) 20.52 m (iii) 21.52 m (iv) 19.52 m (v) 18.52 m

19. Two poles of heights 6 m and 16 m stand vertically on a plane ground. If the distance between their feet is 15 m, find the distance between their tops

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

20. A ladder reaches a window which is 9 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 15 m high. Find the width of the street if the length of the ladder is 18 m

(i) 25.54 m (ii) 24.54 m (iii) 26.54 m (iv) 23.54 m (v) 27.54 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) 98.00 cm (iv) 99.00 cm (v) 101.00 cm

22. In a right angled triangle, if the two non-hypotenuse sides are 8 cm and 15 cm, find the hypotenuse

(i) 15.00 cm (ii) 17.00 cm (iii) 19.00 cm (iv) 16.00 cm (v) 18.00 cm

23. In a right angled triangle, if one of the angles is 47.73°, find the third angle

(i) 52.27° (ii) 57.27° (iii) 72.27° (iv) 42.27° (v) 47.27°

24. In a right angled triangle, if one of the angles is 53.75°, find the third angle

(i) 66.25° (ii) 41.25° (iii) 51.25° (iv) 36.25° (v) 46.25°

Assignment Key

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