EduSahara™ Assignment

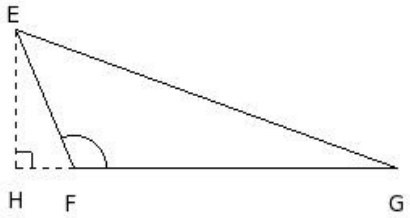
Name : Pythagoras Theorem

Chapter : Pythagoras Theorem

Grade : ICSE Grade IX

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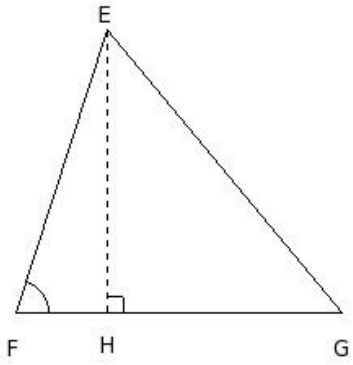
1. In the given figure, △EFG is an obtuse angled triangle and EH ⊥ FG. Then



(i) $EG^2 = EF^2 + FG^2 + FH^2$ (ii) $EG^2 = EF^2 + FG^2 + 2FG.FH$ (iii) $EG^2 = EF^2 + FG^2 - 2FG.FH$

(iv) $EG^2 = EF^2 + FG^2 + 2EF.FG$ (v) $EG^2 = EF^2 + FG^2 + 2FH.GH$

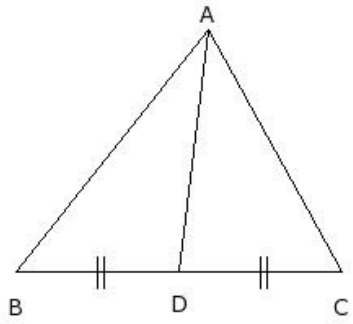
2. In the given figure, △EFG is an acute angled triangle and EH ⊥ FG. Then



(i) $EG^2 = EF^2 + FG^2 + 2FG.FH$ (ii) $EG^2 = EF^2 + FG^2 - 2EF.FG$ (iii) $EG^2 = EF^2 + FG^2 - EH^2$

(iv) $EG^2 = EF^2 + FG^2 + 2EF.FG$ (v) $EG^2 = EF^2 + FG^2 - 2FG.FH$

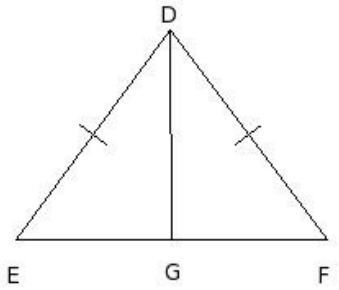
3. In the given figure, △ABC is a triangle with AD being the median of BC. Then



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

(v) $AB^2 + AC^2 = 2BD^2 + 2DC^2$

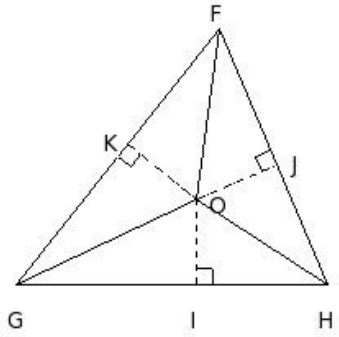
4. In the given figure, △DEF is a triangle in which DE = DF and G is a point on EF. Then



(i) $DE^2 - DG^2 = EG.FG$ (ii) $DE^2 - DG^2 = DG.FG$ (iii) $DE^2 + DG^2 = EF^2$ (iv) $DE^2 - DG^2 = DG.EG$

(v) $DE^2 + DG^2 = EG.FG$

5. In the given figure, in △FGH, 'O' is a point inside the triangle. OI ⊥ GH, OJ ⊥ FH and OK ⊥ FG. Then

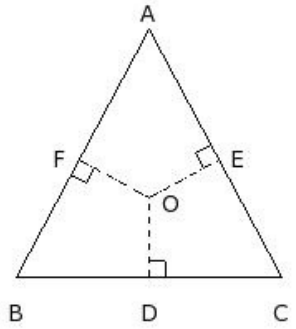


(i) $FK^2 + GI^2 + HJ^2 = OK^2 + OJ^2 + OI^2$ (ii) $FK^2 + GI^2 + HJ^2 = OF^2 + OG^2 + OH^2 - OI^2 - OJ^2 - OK^2$

(iii) $FK^2 + GI^2 + HJ^2 = OF^2 + OG^2 + OH^2 + OI^2 + OJ^2 + OK^2$

(iv) $FK^2 + GI^2 + HJ^2 = FG^2 + IH^2 + HF^2 - GK^2 - HI^2 - JF^2$

6. In the given figure, in △ABC, 'O' is a point inside the triangle. OD ⊥ BC, OE ⊥ AC and OF ⊥ AB. Then



(i) $AF^2 + BD^2 + CE^2 = OF.OD + OD.OE + OE.OF$ (ii) $AF^2 + BD^2 + CE^2 = OA.OB + OB.OC + OC.OA$

(iii) $AF^2 + BD^2 + CE^2 = AE^2 + CD^2 + BF^2$ (iv) $AF^2 + BD^2 + CE^2 = OD^2 + OE^2 + OF^2$

7. In the given figure, $\triangle CED$ is right-angled at E. Q is the mid-point of CE and R is the mid-point of DE. Which of the following cases are true?

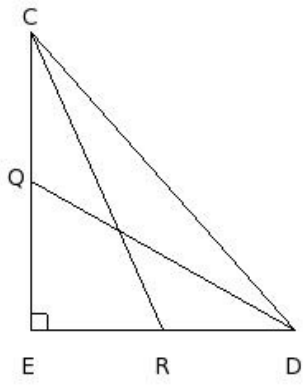
a) $4\,CR^2 = 4\,DE^2 + CE^2$

b) $4\,DQ^2 = 4\,CE^2 + DE^2$

c) $4\,DQ^2 = 4\,DE^2 + CE^2$

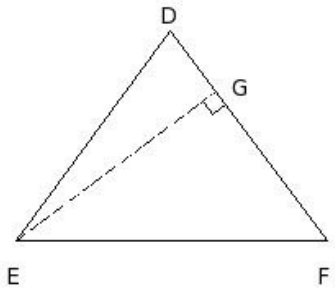
d) $4\,CR^2 = 4\,CE^2 + DE^2$

e) $4\,(CR^2 + DQ^2) = 5\,CD^2$



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

8. In the given figure, $\triangle DEF$ is isosceles with $DE = DF$ and $EG \perp DF$. Then



(i) $EG^2 - DG^2 = 2\,FG.DG$ (ii) $EG^2 - FG^2 = 2\,FG.DG$ (iii) $EG^2 + DG^2 = 2\,FG.DG$ (iv) $EG^2 + FG^2 = 2\,FG.DG$

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

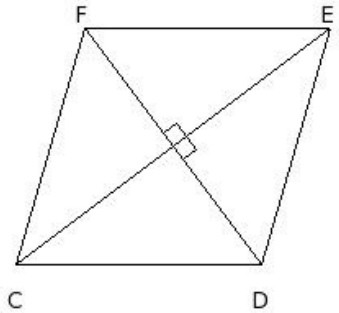
a) $4\,CD^2 = CE^2 + DF^2$

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

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

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

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



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

10. In the given figure, $\triangle FGH$, $FI \perp GH$. Which of the following are true?

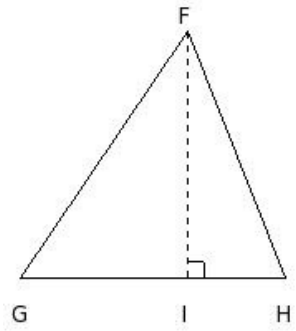
a) $FG^2 + GI^2 = FH^2 + HI^2$

b) $FG^2 - FH^2 = GI^2 - HI^2$

c) $FG^2 + FH^2 = GI^2 + HI^2$

d) $FI^2 = 2\,GI\,.\,HI$

e) $FG^2 - GI^2 = FH^2 - HI^2$

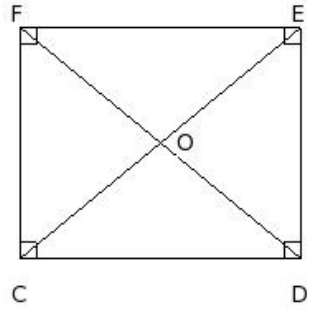


(i) {c,e} (ii) {a,b} (iii) {c,e,b} (iv) {b,e} (v) {d,a,b}

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

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

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

13. In the given figure, △DEF , G is the mid-point of EF and DH ⊥ EF. Which of the following are true?

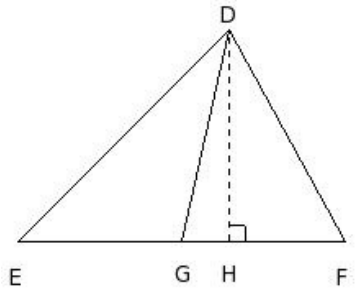
a) $DF^2 = DG^2 + EF.GH + \frac{1}{4} EF^2$

b) $DE^2 = DG^2 - EF.GH + \frac{1}{4} EF^2$

c) $DF^2 = DH^2 + EF.GH + \frac{1}{4} EF^2$

d) $DE^2 = DH^2 - EF.GH + \frac{1}{4} EF^2$

e) $DE^2 + DF^2 = 2\,DG^2 + \frac{1}{2} EF^2$



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

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?

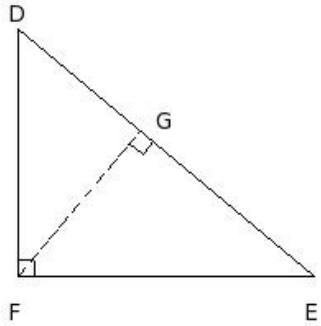
a) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = \frac{1}{p^2}$

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

c) $ab = pc$

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

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

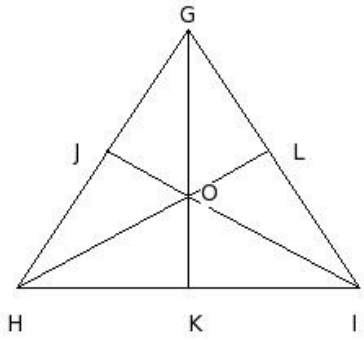


(i) {a,b} (ii) {a,b,c} (iii) {b,c,d} (iv) {e,c} (v) {a,e,d}

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

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

16. In the given figure, GHI is a triangle and 'O' is a point inside △GHI. The angular bisector of ∠HOG, ∠IOH & ∠GOI meet GH, HI & IG at J, K & L respectively . Then



(i) GJ . HK . IL = GH . HI . IG (ii) GJ . HK . IL = OG . OH . OI (iii) GJ . HK . IL = JH . KI . LG

(iv) GJ . HK . IL = JK . KL . LJ (v) GJ . HK . IL = OJ . OK . OL

17. A vehicle goes 15 km North and then 12 km West. How far is it from its starting point ?

(i) 21.21 km (ii) 19.21 km (iii) 17.21 km (iv) 18.21 km (v) 20.21 km

18. The foot of a ladder resting on a wall from the foot of the wall is 13 m. If the height of the top of the ladder from ground is 14 m, find the length of the ladder

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

19. Two poles of heights 5 m and 18 m stand vertically on a plane ground. If the distance between their feet is 14 m, find the distance between their tops

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

20. 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 15 m high. Find the width of the street if the length of the ladder is 19 m

(i) 29.90 m (ii) 30.90 m (iii) 26.90 m (iv) 28.90 m (v) 27.90 m

21. In a right angled triangle, if one of the sides is 18 cm and hypotenuse 82 cm, find the third side

(i) 78.00 cm (ii) 82.00 cm (iii) 79.00 cm (iv) 80.00 cm (v) 81.00 cm

22. In a right angled triangle, if the two non-hypotenuse sides are 16 cm and 63 cm, find the hypotenuse

(i) 66.00 cm (ii) 64.00 cm (iii) 63.00 cm (iv) 67.00 cm (v) 65.00 cm

23. In a right angled triangle, if one of the angles is 38.66°, find the third angle

(i) 51.34° (ii) 61.34° (iii) 66.34° (iv) 81.34° (v) 56.34°

24. In a right angled triangle, if one of the angles is 47.49°, find the third angle

(i) 52.51° (ii) 72.51° (iii) 42.51° (iv) 47.51° (v) 57.51°

Assignment Key

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

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