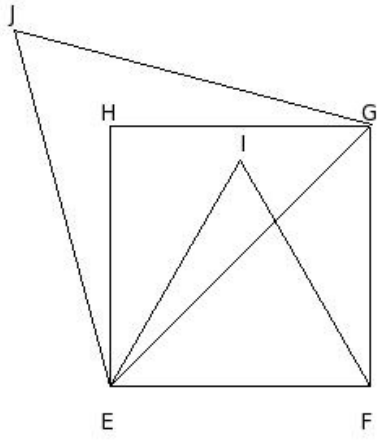
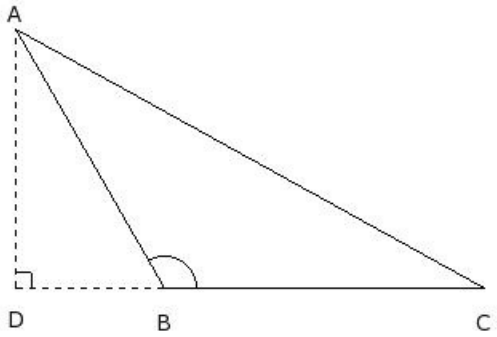
1. EFGH is a square and △EFI is an equilateral triangle. Also, △EGJ is an equilateral triangle. If area of △EFI is 'a' sq.units, then the area of △EGJ is



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

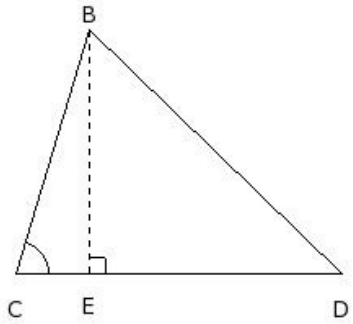
2. In the given figure, △ABC is an obtuse angled triangle and AD ⊥ BC. Then



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

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

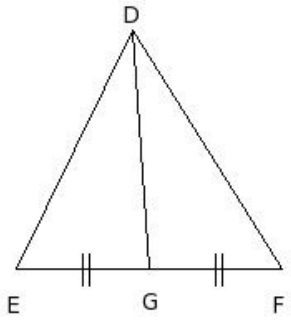
3. In the given figure, △BCD is an acute angled triangle and BE ⊥ CD. Then



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

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

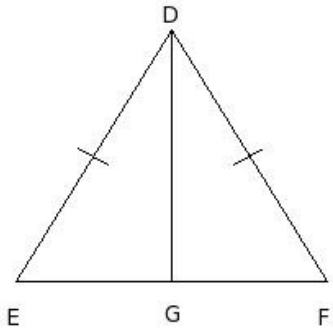
4. In the given figure, △DEF is a triangle with DG being the median of EF. Then



(i) $DE^2 + DF^2 = EF^2$ (ii) $DE^2 + DF^2 = DG^2$ (iii) $DE^2 + DF^2 = 2\,EG^2 + 2\,GF^2$ (iv) $DE^2 + DF^2 = 2\,EG^2 + 2\,DG^2$

(v) $DE^2 + DF^2 = 2\,GF^2 + 2\,DG^2$

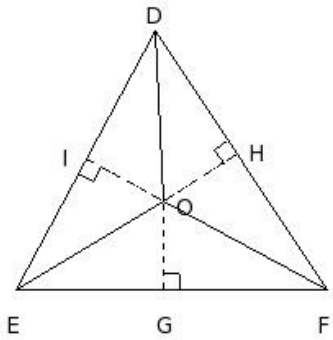
5. In the given figure, △DEF is a triangle in which DE = DF and G is a point on EF. Then



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

(v) $DE^2 - DG^2 = DG.FG$

6. In the given figure, in △DEF, 'O' is a point inside the triangle. OG ⊥ EF, OH ⊥ DF and OI ⊥ DE. Then

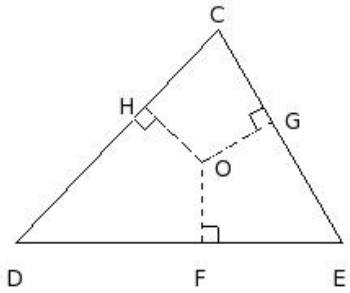


(i) $DI^2 + EG^2 + FH^2 = OI^2 + OH^2 + OG^2$ (ii) $DI^2 + EG^2 + FH^2 = DE^2 + GF^2 + FD^2 - EI^2 - FG^2 - HD^2$

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

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

7. In the given figure, in △CDE, 'O' is a point inside the triangle. OF ⊥ DE, OG ⊥ CE and OH ⊥ CD. Then



(i) $CH^2 + DF^2 + EG^2 = CG^2 + EF^2 + DH^2$ (ii) $CH^2 + DF^2 + EG^2 = OH.OF + OF.OG + OG.OH$

(iii) $CH^2 + DF^2 + EG^2 = OC.OD + OD.OE + OE.OC$ (iv) $CH^2 + DF^2 + EG^2 = OF^2 + OG^2 + OH^2$

8. In the given figure, $\triangle DFE$ is right-angled at F. P is the mid-point of DF and Q is the mid-point of EF. Which of the following cases are true?

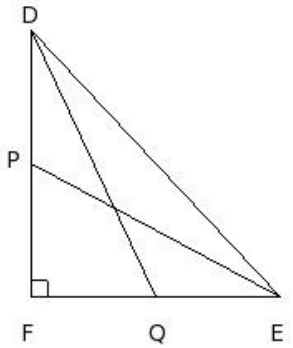
a) $4\,EP^2 = 4\,DF^2 + EF^2$

b) $4\,(DQ^2 + EP^2) = 5\,DE^2$

c) $4\,EP^2 = 4\,EF^2 + DF^2$

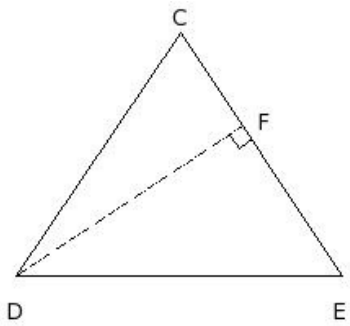
d) $4\,DQ^2 = 4\,EF^2 + DF^2$

e) $4\,DQ^2 = 4\,DF^2 + EF^2$



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

9. In the given figure, △CDE is isosceles with CD = CE and DF ⊥ CE. Then



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

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

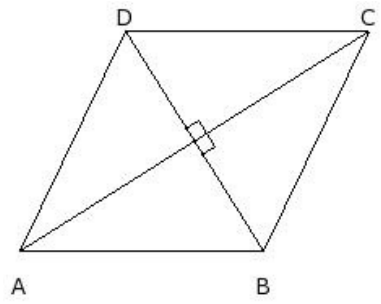
a) $AB^2 + BC^2 + CD^2 + AD^2 = AC^2 + BD^2$

b) $2\,AB^2 = AC^2 + BD^2$

c) $BC^2 + CD^2 = BD^2$

d) $AB^2 + BC^2 = AC^2$

e) $4\,AB^2 = AC^2 + BD^2$



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

11. In the given figure, $\triangle HIJ$, $HK \perp IJ$. Which of the following are true?

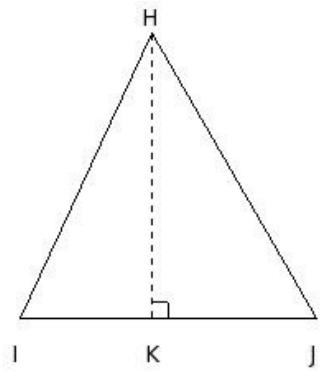
a) $HI^2 - IK^2 = HJ^2 - JK^2$

b) $HI^2 - HJ^2 = IK^2 - JK^2$

c) $HK^2 = 2\,IK.JK$

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

e) $HI^2 + IK^2 = HJ^2 + JK^2$

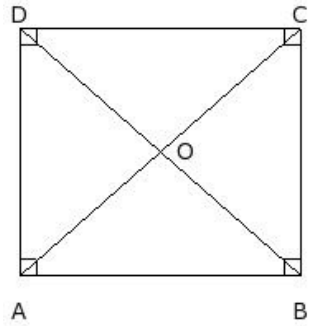


(i) {c,a} (ii) {a,b} (iii) {d,b} (iv) {e,c,a} (v) {d,b,a}

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

(i) $\sqrt{3}\,a, \frac{1}{2}\sqrt{3}\,a^2$ (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) $\sqrt{3}\,a, \frac{1}{2}\sqrt{3}\,a$

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, $\triangle CDE$, F is the mid-point of DE and $CG \perp DE$. Which of the following are true?

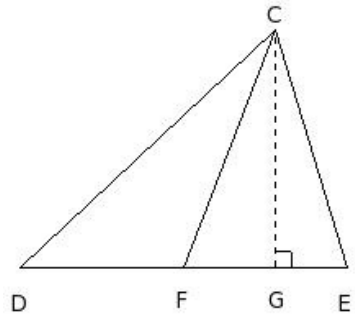
a) $CE^2 = CG^2 + DE.FG + \frac{1}{4} DE^2$

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

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

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

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



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

15. In the given figure, △ACB is right-angled at C, CD ⊥ AB.
$AB = c, CB = a, AC = b$ and $CD = p$. Which of the following are true?

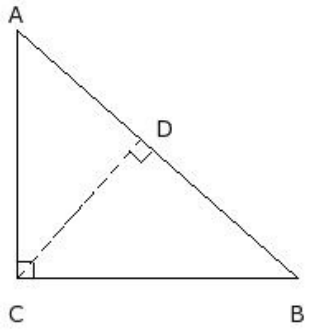
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2}$

b) $ab = pc$

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

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

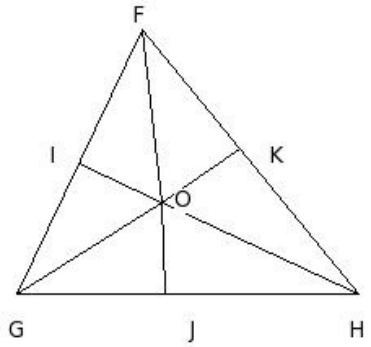
e) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = \frac{1}{p^2}$



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

16. In an equilateral triangle ABC, the side BC is trisected at D. Then
(i) $7\ AD^2 = 9\ AB^2$ (ii) $3\ AD^2 = 7\ AB^2$ (iii) $9\ AD^2 = 7\ AB^2$ (iv) $7\ AD^2 = 3\ AB^2$

17. In the given figure, FGH is a triangle and 'O' is a point inside △FGH. The angular bisector of ∠GOF, ∠HOG & ∠FOH meet FG, GH & HF at I, J & K respectively . Then



(i) FI . GJ . HK = IJ . JK . KI (ii) FI . GJ . HK = FG . GH . HF (iii) FI . GJ . HK = OF . OG . OH

(iv) FI . GJ . HK = IG . JH . KF (v) FI . GJ . HK = OI . OJ . OK

18. A vehicle goes 11 km East and then 15 km South. How far is it from its starting point ?
(i) 16.60 km (ii) 18.60 km (iii) 17.60 km (iv) 19.60 km (v) 20.60 km

19. 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) 19.52 m (ii) 20.52 m (iii) 22.52 m (iv) 18.52 m (v) 21.52 m

20. Two poles of heights 8 m and 16 m stand vertically on a plane ground. If the distance between their feet is 10 m, find the distance between their tops
(i) 10.81 m (ii) 11.81 m (iii) 13.81 m (iv) 14.81 m (v) 12.81 m

21. A ladder reaches a window which is 10 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 17 m

(i) 23.39 m (ii) 25.39 m (iii) 21.39 m (iv) 22.39 m (v) 24.39 m

Assignment Key

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