EduSahara™ Assignment

Name : Pythagoras Theorem

Chapter : Triangles

Grade : CBSE Grade X



1. Which of the following are measures of a right angled triangle ?

   (i) KL = 14 cm , LM = 14 cm , MK = 14 cm (ii) KL = 14 cm , LM = 10 cm , MK = 17.2 cm

   (iii) KL = 15 cm , LM = 13 cm , MK = 12 cm (iv) KL = 13 cm , LM = 13 cm , MK = 13 cm

   (v) KL = 15 cm , LM = 22 cm , MK = 13 cm

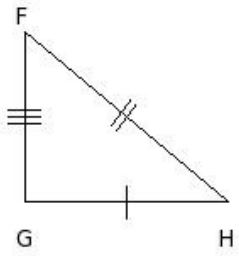
2. Which of the following are measures of an isosceles right angled triangle ?

   (i) HI = 11 cm , IJ = 11 cm , JH = 11 cm (ii) HI = 11 cm , IJ = 15 cm , JH = 10 cm

   (iii) HI = 14 cm , IJ = 15 cm , JH = 13 cm (iv) HI = 10 cm , IJ = 10 cm , JH = 10 cm

   (v) HI = 13 cm , IJ = 13 cm , JH = 18.38 cm

3. Which of the following are measures of a right angled triangle ?

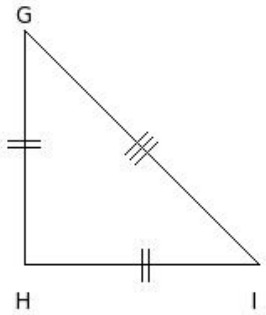



   (i) FG = 13 cm , GH = 12 cm , HF = 15 cm (ii) FG = 11 cm , GH = 11 cm , HF = 11 cm

   (iii) FG = 10 cm , GH = 12 cm , HF = 15.62 cm (iv) FG = 14 cm , GH = 25 cm , HF = 15 cm

   (v) FG = 13 cm , GH = 14 cm , HF = 10 cm

4. Which of the following are measures of an isosceles right angled triangle ?




   (i) GH = 15 cm , HI = 15 cm , IG = 15 cm (ii) GH = 11 cm , HI = 15 cm , IG = 14 cm

   (iii) GH = 14 cm , HI = 14 cm , IG = 19.8 cm (iv) GH = 11 cm , HI = 14 cm , IG = 10 cm

   (v) GH = 11 cm , HI = 21 cm , IG = 12 cm

5. 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) 101.00 cm (iv) 98.00 cm (v) 99.00 cm

6. In a right angled triangle, if the two non-hypotenuse sides are 20 cm and 99 cm, find the hypotenuse

   (i) 99.00 cm (ii) 101.00 cm (iii) 100.00 cm (iv) 102.00 cm (v) 103.00 cm

7. In the given figure, △DEF is right-angled at E. Also, EG ⊥ DF. Which of the following are true?

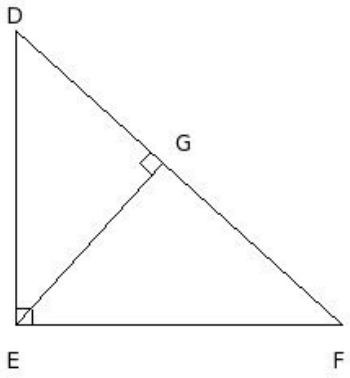
a) $EG^2 = DG \cdot GF$

b) $EF^2 = FD \cdot FG$

c) $DE^2 = DF \cdot DG$

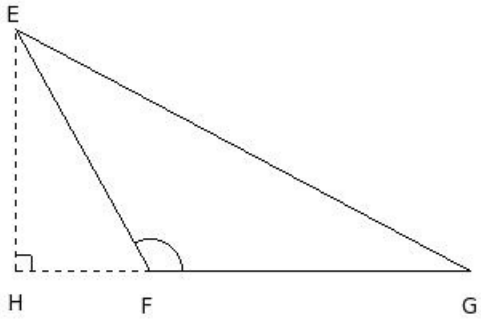
d) $EF^2 = DF \cdot DG$

e) $DE^2 = FD \cdot FG$




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

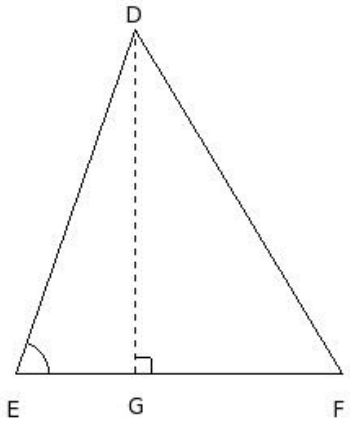
8. In the given figure, △EFG is an obtuse angled triangle and EH ⊥ FG. Then




(i) $EG^2 = EF^2 + FG^2 + 2EF \cdot FG$ (ii) $EG^2 = EF^2 + FG^2 + FH^2$ (iii) $EG^2 = EF^2 + FG^2 + 2FH \cdot GH$

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

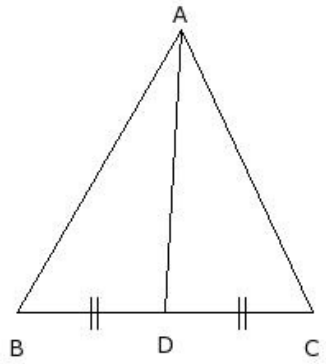
9. In the given figure, △DEF is an acute angled triangle and DG ⊥ EF. Then




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

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

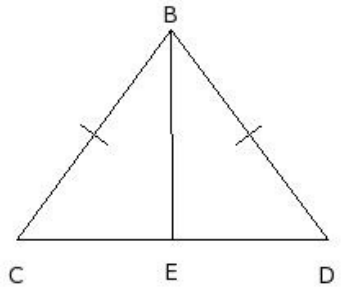
10. In the given figure, △ABC is a triangle with AD being the median of BC. Then




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

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

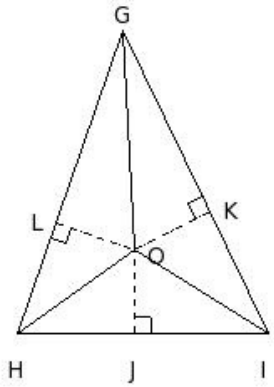
11. In the given figure, △BCD is a triangle in which BC = BD and E is a point on CD. Then




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

(v) $BC^2 - BE^2 = BE.DE$

12. In the given figure, in △GHI, 'O' is a point inside the triangle. OJ ⊥ HI, OK ⊥ GI and OL ⊥ GH. Then

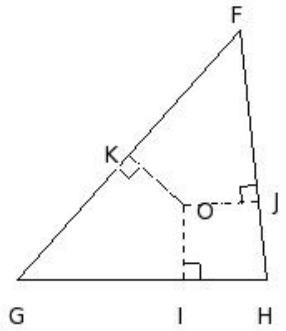



(i) $GL^2 + HJ^2 + IK^2 = OG^2 + OH^2 + OI^2 - OJ^2 - OK^2 - OL^2$

(ii) $GL^2 + HJ^2 + IK^2 = GH^2 + JI^2 + IG^2 - HL^2 - IJ^2 - KG^2$ (iii) $GL^2 + HJ^2 + IK^2 = OL^2 + OK^2 + OJ^2$

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

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




(i) $FK^2 + GI^2 + HJ^2 = OI^2 + OJ^2 + OK^2$ (ii) $FK^2 + GI^2 + HJ^2 = FJ^2 + HI^2 + GK^2$

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

14. In the given figure, △BDC is right-angled at D. R is the mid-point of BD and S is the mid-point of CD. Which of the following cases are true?

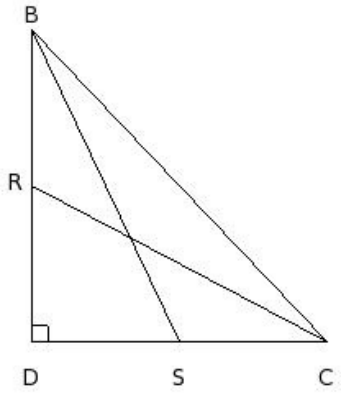
a) $4\,CR^2 = 4\,BD^2 + CD^2$

b) $4\,BS^2 = 4\,CD^2 + BD^2$

c) $4\,(BS^2 + CR^2) = 5\,BC^2$

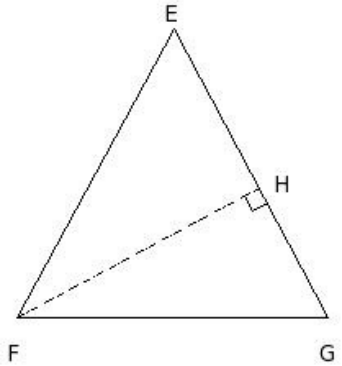
d) $4\,BS^2 = 4\,BD^2 + CD^2$

e) $4\,CR^2 = 4\,CD^2 + BD^2$




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

15. In the given figure, △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) $FH^2 - EH^2 = 2\,GH.EH$

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

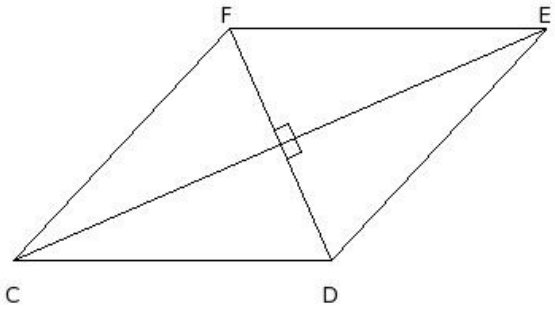
a) $2\,CD^2 = CE^2 + DF^2$

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

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

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

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




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

17. In the given figure, $\triangle DEF$, $DG \perp EF$. Which of the following are true?

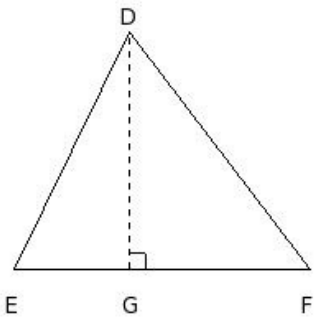
a) $DE^2 + DF^2 = EG^2 + FG^2$

b) $DE^2 - DF^2 = EG^2 - FG^2$

c) $DE^2 - EG^2 = DF^2 - FG^2$

d) $DG^2 = 2\,EG\,.\,FG$

e) $DE^2 + EG^2 = DF^2 + FG^2$

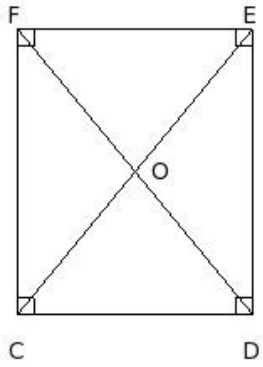



(i) {e,a,b} (ii) {d,c} (iii) {b,c} (iv) {a,b} (v) {d,c,b}

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

19. In the given figure, O is a point in the interior of the rectangle CDEF. Then




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

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

20. In the given figure, $\triangle DEF$ , G is the mid-point of EF and $DH \perp EF$. Which of the following are true?

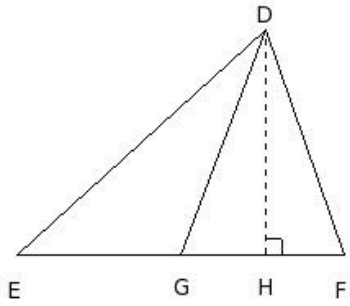
a) $DE^2 + DF^2 = 2\,DG^2 + \frac{1}{2}\,EF^2$

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

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

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

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




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

21. In the given figure, △CED is right-angled at E, EF ⊥ CD.
$CD = c, ED = a, CE = b$ and $EF = p$. Which of the following are true?

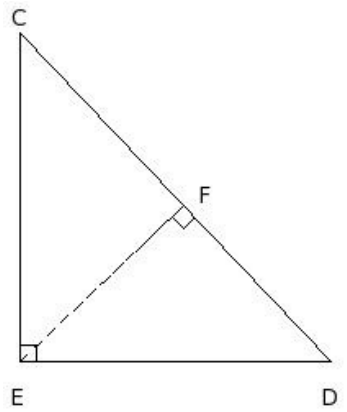
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2}$

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

c) $ab = pc$

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

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

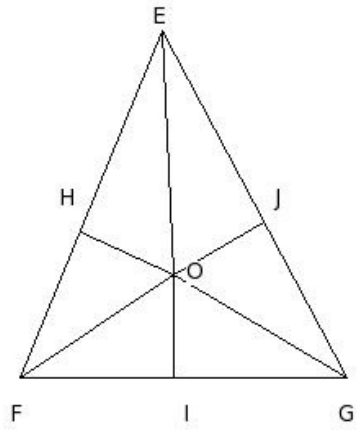



(i) {a,b,c} (ii) {e,b} (iii) {d,a} (iv) {d,e,c} (v) {d,a,b}

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

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

23. 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 = EF . FG . GE (ii) EH . FI . GJ = OE . OF . OG (iii) EH . FI . GJ = OH . OI . OJ

(iv) EH . FI . GJ = HI . IJ . JH (v) EH . FI . GJ = HF . IG . JE

24. A vehicle goes 14 km East and then 15 km North. How far is it from its starting point ?

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

25. 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 13 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

26. Two poles of heights 7 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) 19.20 m (ii) 15.20 m (iii) 16.20 m (iv) 17.20 m (v) 18.20 m

27. 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 16 m high. Find the width of the street if the length of the ladder is 17 m

(i) 21.17 m (ii) 20.17 m (iii) 19.17 m (iv) 18.17 m (v) 22.17 m

## Assignment Key

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|---|---|---|---|---|---|
| 1) (ii) | 2) (v) | 3) (iii) | 4) (iii) | 5) (v) | 6) (ii) |
| 7) (ii) | 8) (v) | 9) (iv) | 10) (ii) | 11) (iii) | 12) (i) |
| 13) (ii) | 14) (ii) | 15) (ii) | 16) (ii) | 17) (iii) | 18) (iv) |
| 19) (i) | 20) (iii) | 21) (i) | 22) (iii) | 23) (v) | 24) (v) |
| 25) (ii) | 26) (iv) | 27) (ii) | | | |