EduSahara™ Assignment

Name : Pythagoras Theorem

Chapter : Triangles

Grade : CBSE Grade X

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

   (i) NO = 14 cm , OP = 10 cm , PN = 12 cm (ii) NO = 15 cm , OP = 15 cm , PN = 15 cm

   (iii) NO = 15 cm , OP = 12 cm , PN = 19.21 cm (iv) NO = 15 cm , OP = 22 cm , PN = 10 cm

   (v) NO = 12 cm , OP = 15 cm , PN = 14 cm

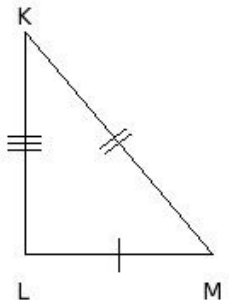
2. Which of the following are measures of an isosceles right angled triangle ?

   (i) CD = 10 cm , DE = 17 cm , EC = 11 cm (ii) CD = 13 cm , DE = 13 cm , EC = 18.38 cm

   (iii) CD = 11 cm , DE = 10 cm , EC = 12 cm (iv) CD = 15 cm , DE = 15 cm , EC = 15 cm

   (v) CD = 15 cm , DE = 11 cm , EC = 12 cm

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

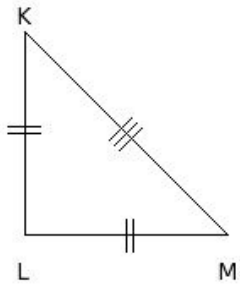


   (i) KL = 14 cm , LM = 14 cm , MK = 14 cm (ii) KL = 13 cm , LM = 10 cm , MK = 15 cm

   (iii) KL = 10 cm , LM = 11 cm , MK = 12 cm (iv) KL = 15 cm , LM = 23 cm , MK = 10 cm

   (v) KL = 13 cm , LM = 11 cm , MK = 17.03 cm

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



   (i) KL = 11 cm , LM = 11 cm , MK = 11 cm (ii) KL = 12 cm , LM = 12 cm , MK = 13 cm

   (iii) KL = 15 cm , LM = 24 cm , MK = 14 cm (iv) KL = 14 cm , LM = 12 cm , MK = 13 cm

   (v) KL = 12 cm , LM = 12 cm , MK = 16.97 cm

5. In a right angled triangle, if one of the sides is 14 cm and hypotenuse 50 cm, find the third side

   (i) 47.00 cm (ii) 50.00 cm (iii) 49.00 cm (iv) 46.00 cm (v) 48.00 cm

6. 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) 83.00 cm (iii) 84.00 cm (iv) 80.00 cm (v) 81.00 cm

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

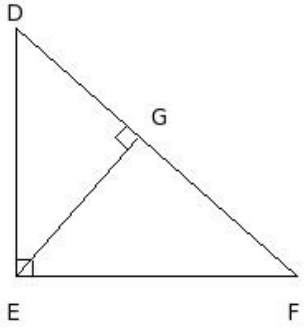
a) $EG^2 = DG \cdot GF$

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

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

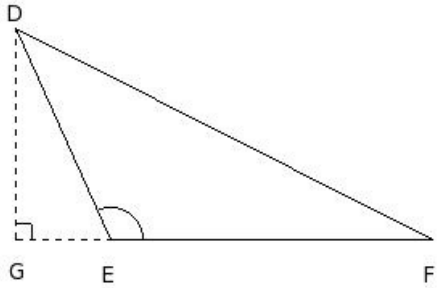
d) $DE^2 = FD \cdot FG$

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



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

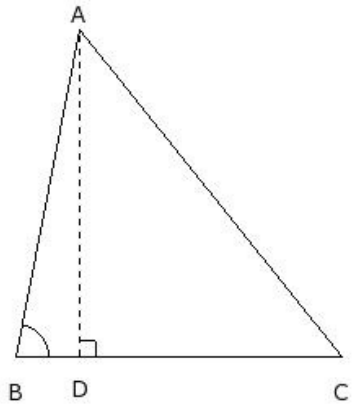
8. In the given figure, △DEF is an obtuse angled triangle and DG ⊥ EF. Then



(i) $DF^2 = DE^2 + EF^2 + EG^2$ (ii) $DF^2 = DE^2 + EF^2 + 2EG \cdot FG$ (iii) $DF^2 = DE^2 + EF^2 + 2DE \cdot EF$

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

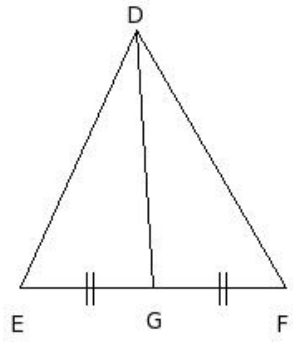
9. In the given figure, △ABC is an acute angled triangle and AD ⊥ BC. Then



(i) $AC^2 = AB^2 + BC^2 + 2BC \cdot BD$ (ii) $AC^2 = AB^2 + BC^2 - AD^2$ (iii) $AC^2 = AB^2 + BC^2 + 2AB \cdot BC$

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

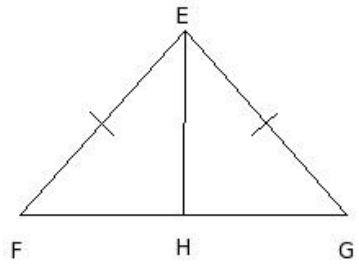
10. In the given figure, △DEF is a triangle with DG being the median of EF. Then



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

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

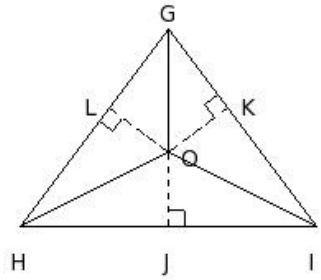
11. In the given figure, △EFG is a triangle in which EF = EG and H is a point on FG. Then



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

(v) $EF^2 - EH^2 = FH.GH$

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

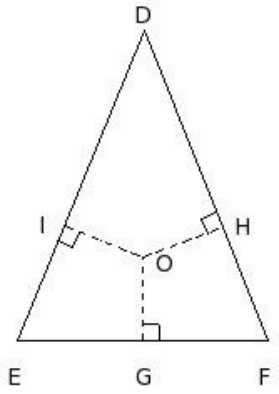


(i) $GL^2 + HJ^2 + IK^2 = OL^2 + OK^2 + OJ^2$ (ii) $GL^2 + HJ^2 + IK^2 = OG^2 + OH^2 + OI^2 - OJ^2 - OK^2 - OL^2$

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

(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 △DEF, 'O' is a point inside the triangle. OG ⊥ EF, OH ⊥ DF and OI ⊥ DE. Then



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

(iii) $DI^2 + EG^2 + FH^2 = DH^2 + FG^2 + EI^2$ (iv) $DI^2 + EG^2 + FH^2 = OG^2 + OH^2 + OI^2$

14. In the given figure, △GIH is right-angled at I. R is the mid-point of GI and S is the mid-point of HI. Which of the following cases are true?

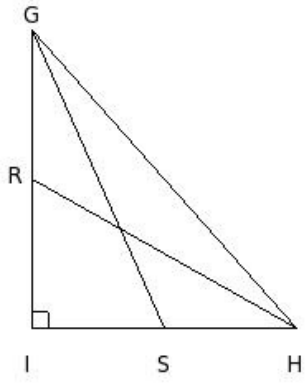
a) $4\,GS^2 = 4\,HI^2 + GI^2$

b) $4\,GS^2 = 4\,GI^2 + HI^2$

c) $4\,(GS^2 + HR^2) = 5\,GH^2$

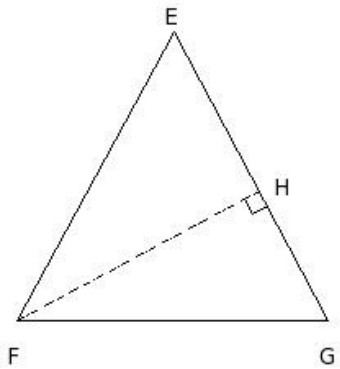
d) $4\,HR^2 = 4\,GI^2 + HI^2$

e) $4\,HR^2 = 4\,HI^2 + GI^2$



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

15. In the given figure, △EFG is isosceles with EF = EG and FH ⊥ EG. Then



(i) $FH^2 - EH^2 = 2\,GH.EH$ (ii) $FH^2 + EH^2 = 2\,GH.EH$ (iii) $FH^2 + GH^2 = 2\,GH.EH$ (iv) $FH^2 - GH^2 = 2\,GH.EH$

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

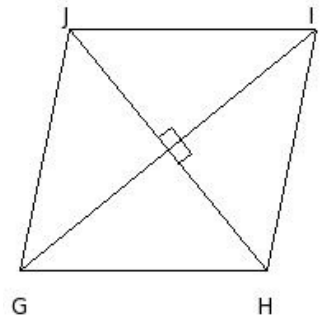
a) $GH^2 + HI^2 + IJ^2 + GJ^2 = GI^2 + HJ^2$

b) $4\,GH^2 = GI^2 + HJ^2$

c) $GH^2 + HI^2 = GI^2$

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

e) $2\,GH^2 = GI^2 + HJ^2$



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

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

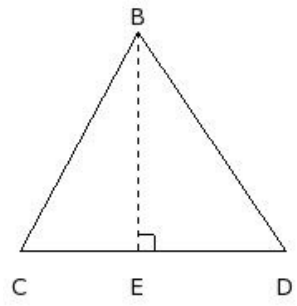
a) $BC^2 - BD^2 = CE^2 - DE^2$

b) $BE^2 = 2\,CE\,.\,DE$

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

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

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

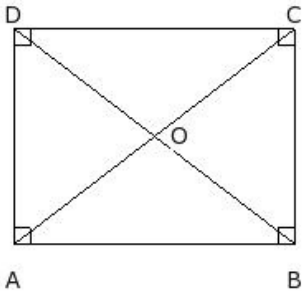


(i) {e,b,a} (ii) {b,a} (iii) {a,c} (iv) {d,c} (v) {d,c,a}

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

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



(i) $OA^2 + OC^2 = OB^2 + OD^2$ (ii) $OA^2 + OB^2 + OC^2 + OD^2 = AC^2 + BD^2$ (iii) $OA^2 - OC^2 = OB^2 - OD^2$

(iv) $OA^2 + OB^2 + OC^2 + OD^2 = AB^2 + BC^2 + CD^2 + DA^2$

20. In the given figure, $\triangle FGH$, I is the mid-point of GH and FJ $\perp$ GH. Which of the following are true?

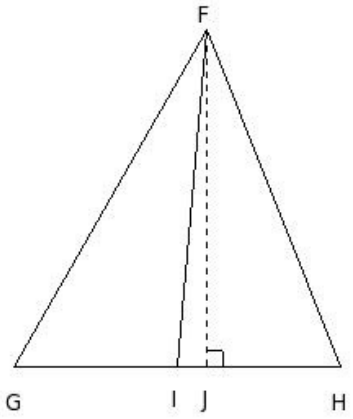
a) $FH^2 = FJ^2 + GH.IJ + \frac{1}{4} GH^2$

b) $FG^2 = FJ^2 - GH.IJ + \frac{1}{4} GH^2$

c) $FG^2 + FH^2 = 2\,FI^2 + \frac{1}{2} GH^2$

d) $FH^2 = FI^2 + GH.IJ + \frac{1}{4} GH^2$

e) $FG^2 = FI^2 - GH.IJ + \frac{1}{4} GH^2$



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

21. 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?

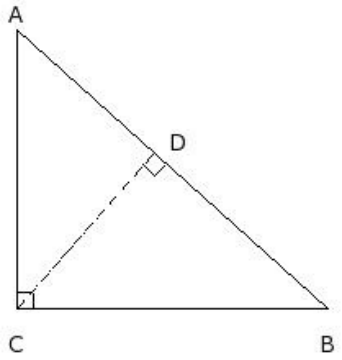
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{p^2}$

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

c) $ab = pc$

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

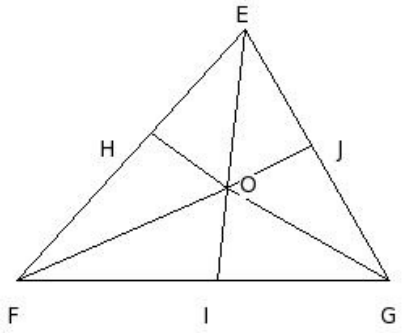
e) $a^2 + b^2 = c^2$



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

22. 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) $7\ AD^2 = 3\ AB^2$ (iv) $7\ AD^2 = 9\ AB^2$

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 = OH . OI . OJ (ii) EH . FI . GJ = HI . IJ . JH (iii) EH . FI . GJ = OE . OF . OG

(iv) EH . FI . GJ = HF . IG . JE (v) EH . FI . GJ = EF . FG . GE

24. A vehicle goes 13 km West and then 12 km South. How far is it from its starting point ?
(i) 15.69 km (ii) 16.69 km (iii) 18.69 km (iv) 19.69 km (v) 17.69 km

25. The foot of a ladder resting on a wall from the foot of the wall is 12 m. If the height of the top of the ladder from ground is 10 m, find the length of the ladder
(i) 13.62 m (ii) 15.62 m (iii) 17.62 m (iv) 16.62 m (v) 14.62 m

26. Two poles of heights 8 m and 15 m stand vertically on a plane ground. If the distance between their feet is 13 m, find the distance between their tops
(i) 15.76 m (ii) 13.76 m (iii) 14.76 m (iv) 16.76 m (v) 12.76 m

27. 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 21 m

(i) 36.11 m (ii) 32.11 m (iii) 35.11 m (iv) 33.11 m (v) 34.11 m

Assignment Key

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