EduSahara™ Learning Center Assignment

Grade : Class X, SSC
Chapter : Similar Triangles
Name : Pythagoras Theorem

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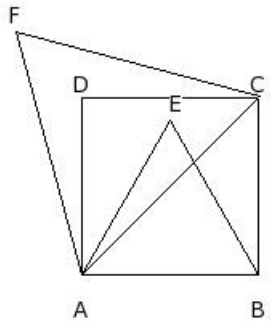
1. ABCD is a square and △ABE is an equilateral triangle. Also, △ACF is an equilateral triangle. If area of △ABE is 'a' sq.units, then the area of △ACF is



(i) a^2 sq.units

(ii) $\frac{1}{2}$ a sq.units

(iii) $\frac{1}{2}\sqrt{3}$ a sq.units

(iv) $\sqrt{3}$ a sq.units

(v) 2a sq.units

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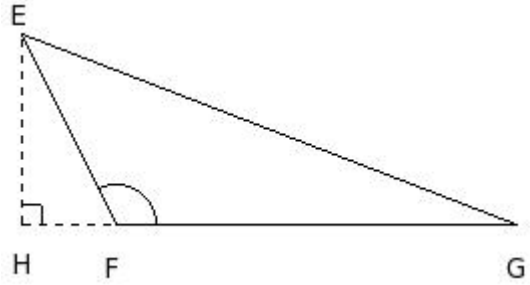
2. In the given figure, △EFG is an obtuse angled triangle and EH ⊥ FG. Then



(i) $EG^2 = EF^2 + FG^2 + 2\ EF\ .\ FG$

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

(iii) $EG^2 = EF^2 + FG^2 + 2\ FG\ .\ FH$

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

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

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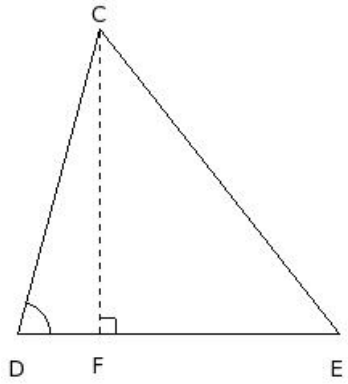
3. In the given figure, △CDE is an acute angled triangle and CF ⊥ DE. Then



(i) $CE^2 = CD^2 + DE^2 - CF^2$

(ii) $CE^2 = CD^2 + DE^2 - 2\ CD\ .\ DE$

(iii) $CE^2 = CD^2 + DE^2 + 2\ DE\ .\ DF$

(iv) $CE^2 = CD^2 + DE^2 + 2\ CD\ .\ DE$

(v) $CE^2 = CD^2 + DE^2 - 2\ DE\ .\ DF$

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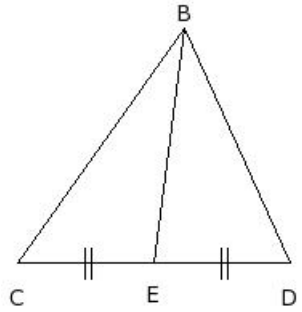
4. In the given figure, △BCD is a triangle with BE being the median of CD. Then



(i) $BC^2 + BD^2 = 2\ ED^2 + 2\ BE^2$

(ii) $BC^2 + BD^2 = CD^2$

(iii) $BC^2 + BD^2 = 2\ CE^2 + 2\ ED^2$

(iv) $BC^2 + BD^2 = BE^2$

(v) $BC^2 + BD^2 = 2\ CE^2 + 2\ BE^2$

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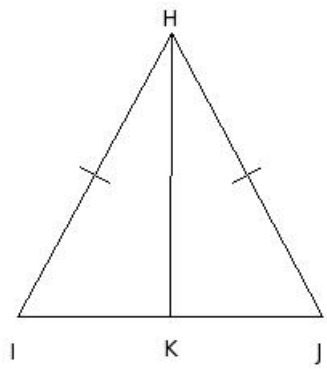
5. In the given figure, △HIJ is a triangle in which HI = HJ and K is a point on IJ



(i) $HI^2 + HK^2 = IJ^2$

(ii) $HI^2 - HK^2 = IK \cdot JK$

(iii) $HI^2 - HK^2 = HK \cdot IK$

(iv) $HI^2 - HK^2 = HK \cdot JK$

(v) $HI^2 + HK^2 = IK \cdot JK$

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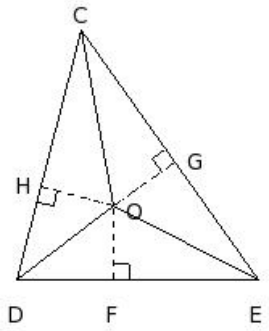
6. In the given figure, in △CDE, 'O' is a point inside the triangle. OF ⊥ DE, OG ⊥ CE and OH ⊥ CD. Then



(i) $CH^2 + DF^2 + EG^2 = OH^2 + OG^2 + OF^2$

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

(iii) $CH^2 + DF^2 + EG^2 = CD^2 + FE^2 + EC^2 - DH^2 - EF^2 - GC^2$

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

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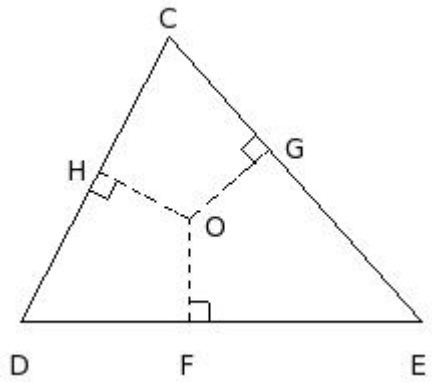
7. In the given figure, in △CDE, 'O' is a point inside the triangle. OF ⊥ DE, OG ⊥ CE and OH ⊥ CD. Then



(i) $CH^2 + DF^2 + EG^2 = OF^2 + OG^2 + OH^2$

(ii) $CH^2 + DF^2 + EG^2 = CG^2 + EF^2 + DH^2$

(iii) $CH^2 + DF^2 + EG^2 = OH \cdot OF + OF \cdot OG + OG \cdot OH$

(iv) $CH^2 + DF^2 + EG^2 = OC \cdot OD + OD \cdot OE + OE \cdot OC$

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8. In the given figure, △ACB is right-angled at C . Q is the mid-point of AC

and R is the mid-point of BC . Which of the following cases are true ?

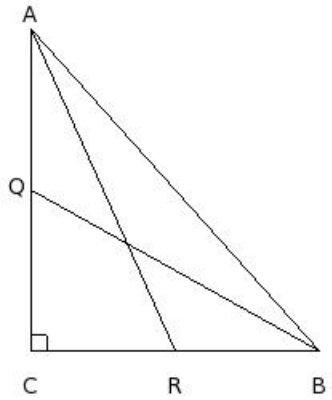
a) $4\ BQ^2 = 4\ BC^2 + AC^2$

b) $4\ AR^2 = 4\ AC^2 + BC^2$

c) $4\ (\ AR^2 + BQ^2\ ) = 5\ AB^2$

d) $4\ AR^2 = 4\ BC^2 + AC^2$

e) $4\ BQ^2 = 4\ AC^2 + BC^2$



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

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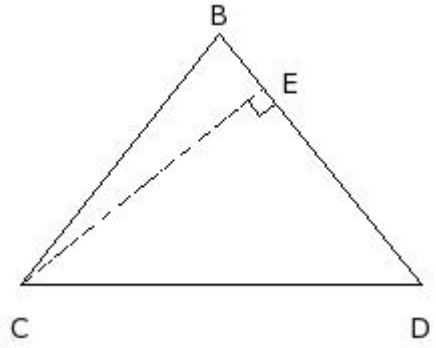
9. In the given figure, △BCD is isosceles with BC = BD and CE ⊥ BD. Then



(i) $CE^2 + DE^2 = 2\ DE\ .\ BE$

(ii) $CE^2 + BE^2 = 2\ DE\ .\ BE$

(iii) $CE^2 - DE^2 = 2\ DE\ .\ BE$

(iv) $CE^2 - BE^2 = 2\ DE\ .\ BE$

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

a) $2\ GH^2 = GI^2 + HJ^2$

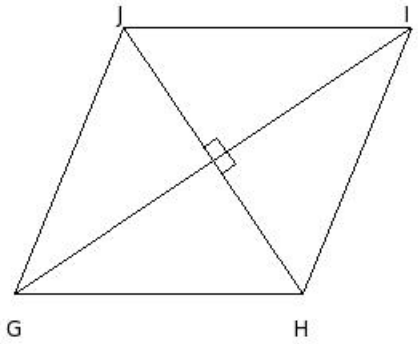
b) $HI^2 + IJ^2 = HJ^2$

c) $4\ GH^2 = GI^2 + HJ^2$

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

e)

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



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

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11. In the given figure, $\triangle CDE$, $CF \perp DE$. Which of the following are true ?

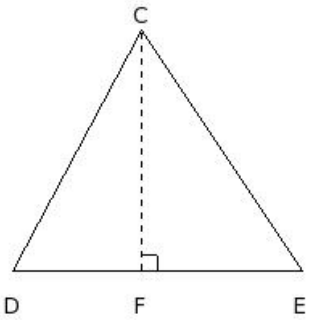
a) $CD^2 + DF^2 = CE^2 + EF^2$

b) $CD^2 + CE^2 = DF^2 + EF^2$

c) $CD^2 - CE^2 = DF^2 - EF^2$

d) $CF^2 = 2\ DF\ .\ EF$

e) $CD^2 - DF^2 = CE^2 - EF^2$



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

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12. 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) $\sqrt{3}\ a,\ \frac{1}{2}\sqrt{3}\ a^2$

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

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

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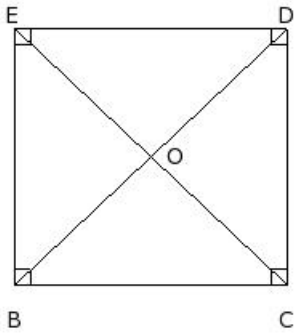
13. In the given figure, O is a point in the interior of the rectangle BCDE. Then



(i) $OB^2 + OD^2 = OC^2 + OE^2$

(ii) $OB^2 - OD^2 = OC^2 - OE^2$

(iii) $OB^2 + OC^2 + OD^2 + OE^2 = BD^2 + CE^2$

(iv) $OB^2 + OC^2 + OD^2 + OE^2 = BC^2 + CD^2 + DE^2 + EB^2$

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14. In the given figure, $\triangle EFG$, H is the mid-point of FG and $EI \perp FG$. Which of the following are true ?

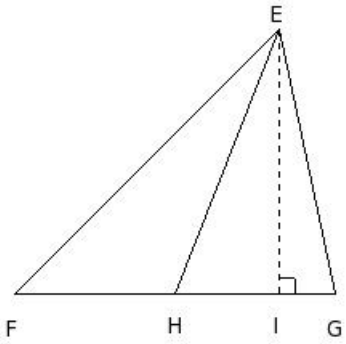
a) $EF^2 + EG^2 = 2\ EH^2 + \frac{1}{2}\ FG^2$

b) $EG^2 = EH^2 + FG\ .\ HI + \frac{1}{4}\ FG^2$

c) $EF^2 = EI^2 - FG\ .\ HI + \frac{1}{4}\ FG^2$

d) $EG^2 = EI^2 + FG\ .\ HI + \frac{1}{4}\ FG^2$

e) $EF^2 = EH^2 - FG\ .\ HI + \frac{1}{4}\ FG^2$



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

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15. In the given figure, $\triangle BDC$ is right-angled at D, $DE \perp BC$.
BC = c, DC = a, BD = b and DE = p. Which of the following are true ?

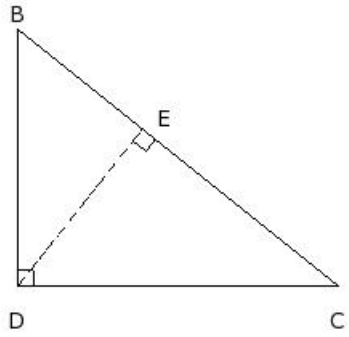
a) $a^2 + b^2 = c^2$

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

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

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

e) ab = pc



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

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16. 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) $3\,AD^2 = 7\,AB^2$

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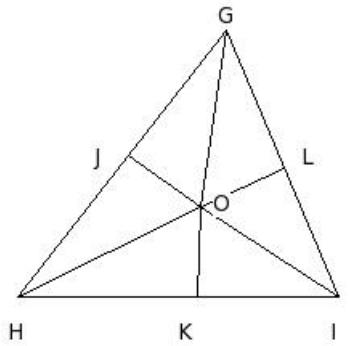
17. In the given figure, GHI is a triangle and 'O' is a point inside △GHI. The angular bisector of ∠HOG, ∠IOH & ∠GOI meet GH, HI & IG at J, K & L respectively . Then



(i) GJ . HK . IL = JK . KL . LJ

(ii) GJ . HK . IL = JH . KI . LG

(iii) GJ . HK . IL = OG . OH . OI

(iv) GJ . HK . IL = GH . HI . IG

(v) GJ . HK . IL = OJ . OK . OL

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18. A vehicle goes 14 km West and then 13 km North. How far is it from its starting point ?

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

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19. The foot of a ladder resting on a wall from the foot of the wall is 14 mt. If the height of the top of the ladder from ground is 10 mt, find the length of the ladder

(i) 17.20 mt (ii) 16.20 mt (iii) 15.20 mt (iv) 18.20 mt (v) 19.20 mt

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20. Two poles of heights 7 mt and 14 mt stand vertically on a plane ground. If the distance between their feet is 12 mt, find the distance between their tops

(i) 11.89 mt (ii) 13.89 mt (iii) 15.89 mt (iv) 14.89 mt (v) 12.89 mt

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21. A ladder reaches a window which is 11 mt 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 mt high. Find the width of the street if the length of the ladder is 17 mt

(i) 21.61 mt (ii) 24.61 mt (iii) 20.61 mt (iv) 23.61 mt (v) 22.61 mt

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Assignment Key

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